VOL. IV. NO. 196.

GARDEN AND FOREST

A JOURNAL OF HORTICULTURE LANDSCAPE ART AND FORESTRY

NOVEMBER 25 1891

PRICE TEN CENTS.] Copyright, 1891, by THE GARDEN AND FOREST PUBLISHING COMPANY. [$4.00 A YEAR, IN ADVANCE.

HARDY PLANTS.

Rhododendrons, Japanese Maples, Hardy Azaleas, Rare Trees and Shrubs. The finest and most complete stock in America. The finest Catalogue in the world is sent for 25 cts., which is allowed on first order.

B.A. ELLIOTT COMPANY, Pittsburgh, Pa.

Ornamental Trees

SHRUBS AND CONIFERS.

Finest collection in New England. Includes the best novelties. 90-page catalogue full of good hints.

LARGE AND SMALL FRUITS.

Proved for New England climate. 28-page catalogue with culture.

HARDY BORDER PLANTS.

Finest collection in America. 60-page catalogue. Over 800 varieties described. The most complete on the subject in America. The above are "Three Valuable Handbooks." All plants can be seen at the Nursery, which was established in 1854.

JACOB W. MANNING,

THE READING NURSERY, Reading, Mass.

All Catalogues Free.

JOSEPH GILLOTT'S STEEL PENS.

GOLD MEDAL, PARIS EXPOSITION, 1889.

THE MOST PERFECT OF PENS.

FOR ORCHIDS that will grow and blossom all the year, apply to SANDER'S, St. Albans, England. Largest and finest stock in the whole world. Thirty minutes from St. Pancras. Our Agent, Mr. A. Dimmock, will be pleased to interview buyers, or reply to any communication addressed to him at 205 Greenwich Street, New York City.

WANTED.—I desire to purchase any old Books on Gardening. State titles, date of publication and price. Also, old catalogues of nurserymen and seedsmen.—Address, SAMUEL HENSHAW, Thompson, Conn.

N.Y. Engraving and Printing Co.

PHOTO-PROCESSES.

ENGRAVED PLATES FOR ALL ILLUSTRATIVE PURPOSES

320-322 Pearl Street,

NEW YORK.

SILVER MEDAL

AWARDED FOR

Spiræa Japonica grandiflora

(NEW) and

SPIRÆA ASTILBOIDES.

A first-class collection of

HARDY HERBACEOUS PERENNIALS.

Aquilegias, Asters, Delphiniums, Gaillardias, Œnotheras, Potentillas, etc., etc.

HARDY SHRUBBERY.

Hydrangea paniculata grandiflora, Spiræas Thunbergi and Van Houttei, etc.

Roses, Clematis, Altheas, Berberis Thunbergi, etc., etc.

☞ Catalogue free.

REA BROTHERS, NORWOOD, Mass.

HARDY PLANTS.

Descriptive Catalogue of 100 pages will be mailed to all applicants. Hollyhocks, Iris, Pæonies, etc., together with many NEW SORTS not before offered.

H. MEYERS,

Lock Drawer E,—Late WOOLSON & Co.—Passaic, N. J.

V. LEMOINE & SON,

NANCY, FRANCE.

Catalogue of Novelties, including BEGONIAS, ZONALES, PELARGONIUMS, GLADIOLUS, MONTBRETIAS, etc., etc., now ready, and will be mailed free on application to their Agents:

C. C. ABEL & CO., New York.

Privet, California.

A few (100) Privet, extra bushy, five to six feet, will be sold on reasonable terms to close it out. Large shrubs are selling off at $10 per hundred.

P. H. FOSTER,

BABYLON NURSERY, BABYLON, N. Y.

BOUND VOLUMES

OF

GARDEN AND FOREST.

The prices of the Bound Volumes of GARDEN AND FOREST are as follows:

Vol. I.	(year 1888), . .	$6.00
Vol. II.	(year 1889), . .	10.00
Vol. III.	(year 1890), . .	10.00

Parsons & Sons Co.

LIMITED.

Kissena Nurseries, Flushing, N. Y., offer

Rhododendrons

of American grown hardy sorts.

Hardy Azaleas.

For other rare and old plants, see Catalogue.

HARDY RHODODENDRONS

AND

AZALEAS.

THE LARGEST AND BEST STOCK IN THE WORLD.

Nearly all the kinds which have proved hardy in the vicinity of Boston originated in this Nursery, and we have a supply of many hundred thousands of sturdy healthy plants, well budded and true to name.

HARDY AZALEAS. Thousands of the handsomest varieties known.

The RHODODENDRONS exhibited at the Centennial at Philadelphia were from ANTHONY WATERER, as are also the Rhododendrons and Azaleas in Rotten Row, Hyde Park, London.

Catalogues, priced and descriptive, from

ANTHONY WATERER,

Knap Hill Nursery, Woking, England.

Flower Pots.

We give special attention to private trade, and keep always on hand a large and selected stock of perfectly made Pots, as follows:

Hand-made, old pattern, from 4-inch to 24-inch inclusive.

Machine-made, from 2-inch to 4½-inch, old pattern, straight sides.

"Standards," from 1¾-inch to 12-inch inclusive.

Distance should not prevent private trade from using the best Pots that are manufactured, as freights are very low and breakage nominal. Correspondence solicited.

A. H. HEWS & CO.,

North Cambridge, Mass.

TOWN OF BROOKLINE.

PARK DEPARTMENT.

Proposals for Plants.

SEALED PROPOSALS for all or any of the Plants mentioned below, indorsed, "Proposal for Plants," will be received at the office of the Clerk of the Park Commissioners, Town Hall, Brookline, Mass., until December 1st, 1891:

200 Red Oak (Quercus rubra), 6 to 10 feet high.
100 Pin Oak (Quercus palustris), 6 to 10 feet high.
100 White Oak (Quercus alba), 1 to 3 feet high.
100 White Ash (Fraxinus Americana), 6 to 10 feet high.
200 Sugar Maple, 6 to 10 feet high.
200 Red Maple, 6 to 10 feet high.
50 American Elms, 6 to 10 feet high.
1,000 Berberis vulgaris, 1 to 2 feet high.
500 Berberis Thunbergii, 6 inches to 1 foot high.
500 Viburnum dentatum, 1 to 2 feet high.
500 Viburnum Opulus, 1 to 2 feet high.
1,000 Cornus paniculata, 1 to 2 feet high.
1,000 Cornus alternifolia, 2 to 3 feet high.
1,000 Cornus sericea, 1 to 2 feet high.
200 Cornus florida, 4 to 6 feet high.
500 Cornus circinata, 2 to 3 feet high.
500 Lycium vulgare, 2 to 3 feet high.
200 Sambucus Canadensis, 2 to 3 feet high.
1,000 Sweet Fern (Comptonia asplenifolia), 6 to 12 inches high.
1,000 Buckthorn (Rhamnus catharticus), 2 to 3 feet high.
500 Staghorn Sumach, 3 to 4 feet high.
1,000 Myrica cerifera, 1 foot high.
1,000 American Wild Roses, 1 foot high.
500 Sweet Brier Roses, 1 foot high.
500 Ampelopsis quinquefolia, 2 to 3 years old.
500 Celastrus scandens, 2 to 3 years old.
500 Wild Grape-vines, 3 to 4 years old.

All plants must have been grown in nursery at least one year, well-rooted, and in all respects first-class. They are to be delivered, in good order, between April 1st and April 10th, 1892, freight prepaid, at the Brookline Railroad Station, or at one of the local express offices.

Bidders must send to the Engineer a specimen of each variety of plant that they propose to furnish, to which standard, in case the contract is awarded, the bidders will be required to conform.

The Commissioners reserve the right to reject any or all bids if they deem it for the interest of the town to do so.

Further particulars may be obtained upon application to ALEXIS H. FRENCH, C. E., Town Hall, Brookline, Mass.

HENRY M. WHITNEY,
CHARLES S. SARGENT,
WILLIAM H. LINCOLN,
Board of Park Commissioners of the Town of Brookline.

October 23, 1891.

VAN HOUTEN'S COCOA

MR. PECKSNIFF

"Best & Goes Farthest."

"Thank heaven, I Am quite well. May I be permited to say: Thank heaven and VAN HOUTEN?

"Is it not his Cocoa That makes me feel so Well?"

PERFECTLY PURE.

VAN HOUTEN'S PATENT PROCESS

increases by 50 PER CENT. the solubility of the flesh-forming elements, making of the cocoa bean an *easily* digested, delicious, nourishing and stimulating drink, readily assimilated, even by the most delicate.

Sold in 1-8, 1-4, 1-2 and 1 lb. Cans.

☞If not obtainable, enclose 25 cts. to either VAN HOUTEN & ZOON, 106 Reade Street, New York or 45 Wabash Ave., Chicago, and a can containing enough for 35 to 40 cups, will be mailed. *Mention this publication.* Prepared only by the inventors VAN HOUTEN & ZOON, Weesp, Holland. 25.

Readers of GARDEN AND FOREST are requested to mention that paper in corresponding with advertisers.

50 OTHERS

have yet to make a record which will justify public confidence. The United States Mutual Accident Association has made its record, and 55,000 bright business men are its members.

Charles B. Peet,
President.

James R. Pitcher,
Sec. & Gen. Mgr.

320, 322 & 324 Broadway,
New York.

GOLD MEDAL, PARIS, 1878.

W. BAKER & CO.'S

Breakfast Cocoa

from which the excess of oil has been removed,

Is absolutely pure and it is soluble.

No Chemicals

are used in its preparation. It has *more than three times the strength* of Cocoa mixed with Starch, Arrowroot or Sugar, and is therefore far more economical, *costing less than one cent a cup.* It is delicious, nourishing, strengthening, EASILY DIGESTED, and admirably adapted for invalids as well as for persons in health.

Sold by Grocers everywhere.

W. BAKER & CO., Dorchester, Mass.

"THE NEW METHOD"

for good health cures all chronic diseases.

Rev. A. Albro, D.D., Utica, N. Y., writes: "One of the greatest boons to mankind in modern days." Infinitely better than the Hall System. Half the price. Send for testimonials.

HEALTH SUPPLIES CO., 710 BROADWAY, N. Y.

MAGIC LANTERNS AND VIEWS for Home or Public Use. The BEST in the world. Send for Catalogue.

MARCY SCIOPTICON CO., 1008 Walnut St., Phila., Pa.

What Advertisers Say

As indicative of the value of GARDEN AND FOREST as a medium of business announcement, attention is invited to the following extracts from letters of some regular advertisers:

"Orders of the best class; large buyers and good pay."

21 N. 13th St., Philadelphia, Pa.

We have used the advertising columns of GARDEN AND FOREST, and the results have been satisfactory. The orders received have been of the best class; large buyers and good pay.—JOHN GARDINER & Co.

"Best Medium for Horticulturists."

No. 22 Dey St., New York.

We find GARDEN AND FOREST a good—yes, the best—advertising medium for horticulturists, because its readers are the most intelligent.—F. E. MCALISTER.

"Secures the best class of buyers."

60 & 70 Vesey St., New York.

By advertising in GARDEN AND FOREST we have secured a class of buyers never before reached. We shall renew our advertising in your handsome pages the coming season.—PETER DURYEE & Co.

For terms, etc., address GARDEN AND FOREST PUBLISHING Co., Tribune Building, N. Y.

GARDEN AND FOREST PUBLISHING CO.

Tribune Building, New York.

Garden and Forest.

Among the contents of next week's issue (No. 197) will be the following articles:

The Manzanita. (With illustration.)
EDITORIAL.

Forest Park, Springfield, Massachusetts.
By MRS. J. H. ROBBINS.

Rosa Wichuraiana. (With figure.)
By PROFESSOR SARGENT.

Carnations.
By T. D. HATFIELD.

The paper will contain an illustration of Arctostaphylos Manzanita, from a photograph, and one of Rosa Wichuraiana, from a drawing by Mr. C. E. FAXON.

GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, NOVEMBER 25, 1891.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—How a Village Gained a Park. 553
The New Grant Monument in Lincoln Park, Chicago. 554
The Shrubbery in November. . . . . *Mrs. Danske Dandridge.* 554
Filices Mexicanæ.—IV. (With figure.). . . . . *George E. Davenport.* 555
PLANT NOTES:—Our Native Nelumbo. (With figure.). 556
FOREIGN CORRESPONDENCE:—London Letter. . . . . *W. Watson.* 556
CULTURAL DEPARTMENT:—The Grape Crop. . . . . *E. Williams.* 558
Fruits and Topography. . . . . *T. H. Hoskins, M.D.* 558
Notes on Chrysanthemums. . . . . *J. N. Gerard.* 559
Fertilizers for Tomatoes. 560
A Chrysanthemum Blight. . . . . *Professor Byron D. Halsted.* 560
The Vegetable Garden. . . . . *W. F. Brown.* 560
CORRESPONDENCE:—In the Shore Towns of Massachusetts.—III. . *J. B. Harrison.* 560
The White River Forest Reservation. . . . . *George H. Parsons.* 562
The Specific Name of the Texan Cercis. . . . . *Professor Edward L. Greene.* 562
The Acorn Crop. . . . . *Joseph Meehan.* 563
PERIODICAL LITERATURE. 563
NOTES. 563
ILLUSTRATIONS:—A Pond in Southern Illinois, covered with the Water Chinquapin (*Nelumbo luteum*), Fig. 87. 557
Pellæa Pringlei, n. sp., Fig. 88. 559

How a Village Gained a Park.

LIKE many of the very old towns lying near the great cities which cluster about the harbor of New York, the village of Jamaica, on Long Island, has a reputation for staunch conservatism. During the present year, however, it has been the theatre of a progressive movement which is worthy of being placed on record as an example of public spirit and prompt activity. Last winter a lady who lives in the village organized a society known as the Linnean Club, which had for its objects "the diffusion of botanical knowledge, the encouragement of floriculture, and the preservation of our native plants, shrubs and trees," and to promote these worthy objects the founder of the club gave "little talks," as she modestly called them, every other week, alternating with another member, who, like the founder, was a member of the Torrey Botanical Club of this city. These meetings proved attractive, and, what is better, they proved instructive and stimulating, and soon the club numbered some forty members. The idea of cultivating wild flowers and American plants suggested the advantage of a public place to grow them in, and this thought soon germinated into a conception of the necessity of something like a botanical garden or park for the Linnean Club and for Jamaica. The club could own no real estate, but advantage was taken of the law in this state, which was passed in May, 1888, to meet such emergencies, and to which we have often alluded before. This act enables any fifteen or more citizens, under certain restrictions, to secure lands for parks and playgrounds independent of municipal authority. These corporators can acquire property, by gift or otherwise, to the amount of half a million dollars, and such additional amounts as may be authorized by the Mayor and Common Council of any city or the Supervisor of any town in which it is proposed to establish such parks, and they are clothed with the power to employ officers for enforcing order and compliance with their rules. Fifteen members of the Linnean Club, therefore, incorporated themselves under this act as the Highland Park Association, so that they could take possession of the land which they had determined to secure, and two weeks ago a deed for this land was formally delivered to the corporators as a part of the festival exercises at the first flower-show of the Linnean Club—and the first flower-show ever held in Jamaica.

Jamaica lies just south of the range of hills which forms the backbone of Long Island and gives character to its scenery. Twenty years ago these highlands were well clothed with trees, but the forest-growth has gradually been swept away and the slopes have been turned into streets and building lots. On the summit of the range, just opposite the central part of Jamaica, lies a pond, which has been called from time immemorial the Goose Pond, because its shape had a fancied resemblance to the outline of that bird, where the village boys used to skate in winter, and swim and gather Pond Lilies in the summer. This pond, with half a dozen acres of land at one side of it, was the park area coveted by the new association, who wished to preserve from being covered over and blotted out the most interesting feature of natural scenery near the village, and to save for the boys and girls of the future the grounds where the boys and girls, who are now men and women, had been free to gather nuts and wild flowers. Fortunately, the owner of the land was generous, and, being a native of the village, he held his birthplace in affectionate remembrance, although he now lives in a distant state. He, therefore, not only placed a low valuation upon the land, but subscribed half the sum needed to purchase it. The club went energetically to work to raise the other half, and gave all their neighbors the opportunity to help according to their means, the individual subscriptions ranging from two dollars and a half to a hundred dollars, and now Highland Park is public property, held in trust as a pleasure-ground forever by the fifteen corporators and their successors.

Of course, much remains to be done. The park would be worth a great deal more if additional land could be purchased, enough, at least, to include the entire shore of the pond within its boundaries. The time will come when there will be some grading needed for the playground, and, as the old trees are all gone, there must be some planting, or, at least, some care of the saplings which have already sprung up upon the tract; but the townspeople can be trusted now to improve their pleasure ground and keep it in order, and their interest in it and affection for it will grow with the care they bestow upon it. The fact upon which the people of Jamaica are to be congratulated primarily is that this area, at least, is rescued and held for public use, and their successors a century hence will hold in grateful remembrance the public-spirited women who have preserved this little section of the hill's crest to show the original conformation of the land.

Two or three phases of this work seem to us to deserve special mention. In the first place, the Linnean Club is composed entirely of women. The fifteen corporators who have acquired this park-property by purchase are all women. It is not strange that the need of a public garden should have made its first appeal to the finer sensibilities of women, but no association of business men could have carried the work through with greater effectiveness of organization or promptness of execution. Let us hope that it may occur to the women in many another town that they can accomplish as much in the way of local improvement by co-operative effort as their husbands and brothers can.

Again, it is to be observed that this was not originally a movement for a park, but it was an effort to increase the love of natural objects, and yet it was distinctly out of this that the conception of the need of a public park grew. Here is another hint of the value of organization for encouraging the study of nature out-of-doors and at first-hand. Such study is wholesome in a general way; it opens the mind to good influences, it draws away the thoughts from what is artificial and gives freer play to those elementary instincts which attach us to the soil and

enable us to enjoy those simple pleasures which come from sympathetic contact with the woods and fields; it has a special value in creating and directing sentiment in favor of public parks and gardens for towns and cities.

The Linnean Club has taken special pains to interest the children. This has been done in many ways. The idea of a playground has been a fundamental one throughout the whole discussion. In the beautiful flower-show which was held about a fortnight ago the prizes were not given to professionals, although the local florists kindly helped to make the show attractive, and one of them, at least, offered premiums for competition; but prizes were offered for wild flowers gathered by the children and for plants cultivated by persons under sixteen years of age. This not only encouraged the study of plants in the most practical way, but it insured the help of the children in the work of winning a park. The public schools entered heartily into the project for a pleasure-ground which was to be a place for the amusement of boys and girls as well as for grown people, and one of the most interesting features of the final ceremonies was a contribution of fifty dollars raised in small sums from the pocket-money of the pupils in the public schools. The children who gave their mites for Highland Park will not forget to care for it when they become men and women.

Jamaica was in special need of this public playground, and many other villages which lie just beyond the suburbs of rapidly growing cities have a like need of speedy relief. Even now there is often as little space in these suburban villages for public recreation and the playing of children as there is in compactly built cities. The great cities are steadily sweeping about them, and soon the whole area will be covered with compactly built business blocks and dwellings. The cost of securing open spaces will then be enormous. Even ordinary forethought suggests that park areas in such places should be secured at once. Wherever there is such a village there is room for a Linnean Club.

A description of the new Grant monument in Lincoln Park, at Chicago, recently published in the *American Architect and Building News*, well illustrates the importance of carefully considering the site and the architectural base if a statue is to produce a good effect. As a rule, our statues are injured by bases of insufficient size and dignity, but in this instance the designers seem to have fallen into the opposite error. "The Grant statue," says the writer, "is situated at the eastern side of Lincoln Park, close to the great lake. There has been partially completed this year, outside of what was formerly known as the Lake-shore Drive, a road with water on each side, the actual lake on the east and a stretch of smooth water on the west. In passing, it may be mentioned that this drive is a most wonderful piece of masonry, stretching, as it will, for over a mile, with a stone esplanade on the side toward the lake and a paved beach beyond sloping to the water's edge. It is from this walk and drive that the most comprehensive view of the monument may be obtained, and a slight feeling of disappointment is felt at the insignificance of the bronze compared with the stone. Viewed still closer from the old Lake-shore Drive, where the details of the substructure can be noted, the feeling of disappointment increases, and one is sure that the horse and rider lack that one kindling spark of genius that would lift them above mediocrity." However, the writer continues, when one mounts nearer yet on the road that leads over part of the substructure it is seen that there is "a spirit and strength in the handling of both horse and rider that one would never guess at in viewing the work as a whole," and he decides that the work of the sculptor, Mr. Rebisso, deserves high praise. "The entire trouble," he explains, "is with the substructure, which is so enormous that it dwarfs the actual statue. The possibility of obtaining a comparatively near view of the work makes it undesirable that the handling should be of the broadest; but at the height that it is raised above the spectator at most points, only the strongest work would be effective. Add to this that the belly of the horse and the soles of General Grant's boots were not the parts of the statue, doubtless, that the sculptor wished brought into the greatest prominence, and one can easily see that the effect of the work is lessened by the great height of substructure. If one approaches the statue from the back door, so to speak, up a gentle incline, where low trees cover the principal part of the granite-work, the fine effect of the horse and rider will immediately prove to the even careless observer how much the too extensive masonry detracts from the work of the sculptor, especially when the masonry be of such a crude and harsh character."

A large photograph of the monument, subsequently published in the same journal, confirms its correspondent's words. It shows a stone bridge, with a single round arch which appears to span a lower road, while the main road that it bears is conducted beneath a structure which is more properly to be called a building than a pedestal. With a large round arch at either end and an arcade of five on the longer face, its exact character is hard to explain. As a building it seems to have no special purpose; as a substructure for the statue it is utterly inappropriate. It is encircled by a sort of balustrade, and from the centre of its top rises the true pedestal, bearing the statue so far above the eye that one can well believe it may be a better work than it thus appears to be. Moreover, the whole construction is not only "crude and harsh" in the character of its masonry, but rude and barbaric in design. It exhibits that unfortunate tendency to which we called attention a few weeks ago—the tendency to mistake excessive massiveness for strength, heaviness for dignity, lack of refinement for simplicity. We suppose it would be called a Romanesque design. But no Romanesque builder in any community which had really preserved a memory of Roman civilization, or had evolved from the ruins of this a new civilization of its own, would have designed in such a manner a civic construction the purpose of which was professedly ornamental. These enormous, rough-faced stones; these clumsy angle-shafts; these ponderous arches springing from imposts that are mere rude blocks; these primitive attempts at cornice and balustrade, look like the creations of some rustic builder in a land and age when art was but a memory or a prophecy, when refinement was unknown, when manual skill was at as low an ebb as the power of skillful designing. As a feature in the pleasure-ground of a civilized, nineteenth-century town the cyclopean rudeness of the structure must equally disturb the mind and the eye, while nothing more inappropriate in size and character could be imagined as a support for the statue of a modern man. When we add that this work actually prevents the spectator from taking any point of view from where the statue can be well seen, we must conclude that the art of placing monuments in the open air is not yet universally understood in America.

The Shrubbery in November.

IT is now the middle of November, and our deciduous trees are all bare except the Birches, Beeches and the Oaks, and the foliage of these last has lost its brilliancy of tint, and they are settling down into the sober sadness of their brown and russet winter garb. The Birches still have a sparse covering for their upper branches, and the lower limbs of the Beeches are clothed, while the upper ones are bare. The brightest green foliage still decks the Plums, and some Robinias retain their summer robes, but much the worse for wear, shrunken, faded, tattered and forlorn. The Purple Fringe, a charming small tree, is now beautiful in full dress of orange; it is also remarkable for the exquisite soft, pinkish hues of their translucent young leaves in April, and I know of no tree which will give more pleasing variety in a season's growth.

On descending to the shrubberies I find some Weigelias, Kerrias and Euonymuses still holding green leaves, while Forsythias have a deep plum-colored shading, and the California Privets, which have not shed a leaf, are purpling in striking contrast to a group of Thunberg's Barberries, cheery with

sprays of orange and scattered scarlet berries, which are a god-send to the vagrant birds.

We possess a specimen of *Enkianthus Japonica*, which was very beautiful a month ago, but is now in winter bareness. Its foliage turned to a uniform blood-red, making it more showy than a Dahlia. The tips of the leaves turned first, as did those of a fine *Parottia Persica*, its near neighbor, which is now in full splendor of handsome persistent foliage, irregularly marked with shades of crimson and gold. These two rather rare shrubs are of easiest culture, and I know of none that are more valuable for autumnal effects.

Our Coluteas are still a lively green, and so is the grass, though we have had some sharp frosts. *Cytisus nigricans* retains vigorous leafage of a very dark plum color, almost black. Can this deepening of the foliage be the origin of its name? All Spiræas seem to keep their summer dress until very late, and all are desirable for this and many other good points. The old-fashioned *Spiræa prunifolia* has now shed most of its leaves, but *S. Thunbergii* is exceptionally beautiful, with light yellowish red shades and fairy delicacy of growth. Near by a mass of *S. Lindleyana* is fast losing its golden sprays, while the little *S. Bumalda* and *S. callosa alba* are scarcely changed, except that their leaves have lost their pristine freshness of appearance.

Fontanesia phillyræoides is a rich dark green, and *Hypericum patulum* makes a pleasing spot of verdure for the eye to rest upon. The Golden Elder is golden still, and the Witch Hazel is adorned with tassels and fringe, which do not wear as well as its tiny, inconspicuous yellow florets, which are the calyxes and will remain all winter to protect the ripening seed. The leaves have shriveled long ago. Very golden and strikingly handsome is the Ramanas Rose, while its Himalayan cousin, which shoulders it in our lower shrubbery, is a bright shade of orange, very distinct, as the florists say.

Chimonanthus fragrans is unchanged. It is to be left out all winter—perhaps a dangerous experiment, with no protection except leaves and limbs of trees to keep the mulch in place. This shrub is hardy in England. Although our winters are sometimes very severe, with the thermometer occasionally below zero, our southern Jessamine lives and flourishes with no protection except what is kindly afforded by the autumn winds that heap the withered leaves about its feet. The Iteas are still handsome, in dull red, to which *Elæagnus longipes*, with its grayish foliage, forms a striking and beautiful contrast. Near by a group of Cotoneasters are showy in their dark rich crimson shadings.

Very interesting still are the shrubberies, with changing combinations and lovely effects, delightful to an eye that appreciates color. Many berries add to their beauty; among them the bright hips of the Wild Roses and Sweet Briers, the red and yellow uniform of the Bitter-sweet, and the fiery glow of some Euonymuses are especially noticeable. A variegated Ampelopsis has metallic greenish blue berries, which are pretty and persistent, and the Saint Peter's-worts are sprinkled with white and red berries, which remain until very late in the winter. With a judicious admixture of Evergreens, the shrubberies may be made attractive at all seasons, and one can have endless enjoyment in watching their transformations.

I must not forget the rich verdure of the Honeysuckles and the elegant *Akebia quinata;* nor the Japanese Alder, which is now conspicuously green, with its curious cones and catkins; and I must spare just a word of appreciation of the wild Blackberry-vines, rioting along the lanes, whose ruby wine tints are fairly glowing in the sunshine this sparkling November day.

Rose Brake, W. Va. *Danske Dandridge.*

Filices Mexicanæ.—IV.

THE following concludes the enumeration of the Ferns collected in the states of Nuevo Leon, Jalisco, San Louis Potosí and Machoacan, Mexico, during the seasons of 1888, 1889 and 1890, by Mr. C. G. Pringle, of Charlotte, Vermont. The notes and descriptions, as in former numbers, are by Mr. George E. Davenport, of Medford, Massachusetts.

OPHIOGLOSSUM CROTALOPHOROIDES, Walter (3405). Damp soil, near Patzcuaro, November, 1890.

OPHIOGLOSSUM VULGATUM, L. (1564). Moist places, foot-hills of the Sierra Madre, state of Chihuahua, October, 1887. (Received too late for inclusion in notes for that year.)

OSMUNDA REGALIS, L., no number.

PELLÆA ANGUSTIFOLIA, Baker (1836); also var. *cuneata*, Baker (2026 and 2588). All from Barranca, near Guadalajara, September and November, 1888 and 1889. Moist bluffs and shaded banks.

PELLÆA FLEXUOSA, Link. (2832). Dry cliffs near Guadalajara, November, 1888.

PELLÆA INTRAMARGINALIS, J. Smith, var. *serratifolia*, Hooker and Baker (1986). Shaded grassy slopes of Sierra Madre, Monterey, June, 1888. Tall, elegant specimens.

PELLÆA PRINGLEI, *n. sp.* (2591). Rhizoma short, stout, crowns clothed with a coarse, tawny, fibrous tomentum; fronds 6′ to 16′ tall; stipites 5′ to 10′ long, straw-color, with brownish bases, channeled, naked or with a very slight deciduous pubescence; laminæ bluish green, 2½′ to 6′ long, 1½′ to 4′ broad at base, deltoid-ovate, pinnate, or the lower pinnæ sometimes again pinnatifid; pinnæ three to five pairs, with long straw-colored stalks like the stipites, deltoid-hastate, terminal ones generally one-sided or sub-hastate, but sometimes deltoid-hastate like the others, lower ones sometimes divided into two unequal divisions, or several times unequally lobed, or even pinnately divided into from one to three pairs of oblique-stalked pinnules, the terminal one also stalked; texture sub-herbaceous, the copious free veins plainly visible; costæ prominent on both sides; fructification continuous round the revolute bluish margins.

Habitat: 2591, cool mossy banks, Barranca, near Guadalajara, state of Jalisco, October 19th, 1889; also 2029, collection 1888. Dr. Palmer's 543 of his 1886 collection, which was referred to *P. cordata* with some hesitation, from depauperate specimens, by Professor Eaton, in *Proc. Amer. Acad.*, xxii., p. 463, is identical with Mr. Pringle's plant. The illustration on page 560 is from a drawing by Mr. C. E. Faxon.

PELLÆA RIGIDA, Hooker (3298). Ledges and bare banks, San Jose Pass, October, 1890; also 2602 of 1889 collection.

PELLÆA SKINNERI, Hooker (2831). Of 1888 collection; 2603 and 2586 of 1889 collection. Moist shaded banks, Barranca, June, September.

PHEGOPTERIS RUDIS, Mett. (1844 and 1984). Wet places, near Guadalajara, November, 1888.

PHEGOPTERIS TETRAGONA, Mett. (3409). In a cave partially lighted, whence issues the Choy River, June, 1890.

POLYPODIUM AUREUM, L., var. *areolatum*, D. C. Eaton (2022). On calcareous ledges and banks near Guadalajara, December, 1888; and 2582, from ledges, Sierra de Esteben, October, 1889.

POLYPODIUM ELLIPSOIDEUM, Fée (3404). On trees, hills of Patzcuaro, November, 1890.

POLYPODIUM FURFURACEUM, Schlecht. (3356). On trees, Tamasopo Cañon, June; and 3357, on Oaks, hills of Patzcuaro, November, 1890. I am indebted to Professor Eaton's kindness in placing these numbers, and must confess that I would not so have placed them from the description in "Synopsis Filicum," with which the specimens are wholly at variance. Not only are the "soft spreading hairs" wanting to these specimens, but the rhizoma is clothed with *distinct broad scales* instead of "woolly fibrils," as called for in the description. There is no question, however, but that they agree with specimens heretofore referred to this species by Professor Eaton; from Bourgeau's, Ghiesbreght's, Mohr's, Palmer's and Farlow's collections, and I am well content to leave Mr. Pringle's in such good company.

POLYPODIUM LANCEOLATUM, L. (3358). On Oaks, rocky hills of Patzcuaro, state of Machoacan, November, 1890.

POLYPODIUM LYCOPODIOIDES, L. (3355). Climbing on shrubs, limestone hills of Las Palmas, October, 1890. A very large fine form, in which the fronds are frequently bifid, and the climbing rhizoma unusually stout, very different in appearance from the usual forms of the species, but agreeing very well with Ervendberg's No. 9, from Wartenberg, Mexico, 1858, a specimen of which Professor Eaton very kindly sent to me for comparison.

POLYPODIUM PLESIOSORUM, Kunze (2023). Cold mossy ledges, Sierra Madre, near Monterey, June-July, 1888; also 3354, from rocks and earth, hills of Patzcuaro, November, 1890, and, with this last, from same locality; 3352 (ticketed *Polypodium plesiosorum*, Kunze, var.), a remarkable form, with larger, broader fronds, more strongly serrated pinnæ, lower ones obtusely lobed, and the unusually stout rhizoma densely clothed with large, long and beautifully ciliated pale scales. I was at first inclined to look upon this as a distinct species, but finding similar specimens from Kew in the Cambridge herbarium marked with a query, I sent specimens of Mr. Pringle's plant to Mr. Baker, who has referred it to *plesiosorum*, but thinks it is distinct enough to make a good variety. Subsequent examinations have convinced me that he is right, and as some slight acknowledgment of the many courtesies received from him from time to

time I venture to name it var. *Bakeri*; hills of Patzcuaro, November 14th, 1890. The variety may best be recognized by the great size and beauty of the shaggy rhizoma.

Polypodium plebium Schlecht. (3258). Shaded ledges, Tamasopo Cañon, September, 1890; and 3351, on trees and rocks, hills of Patzcuaro, November, 1890. The two forms are quite different, and both different from specimens previously collected by Dr. Palmer; but the species is apparently an extremely variable one, embracing many forms.

Polypodium plumula, H. B. K. (3353). On trees and rocks, hills of Patzcuaro, November, 1890.

Polypodium sub-petiolatum, Hooker (3328). On trees and rocks, hills of Patzcuaro, November, 1890; and a somewhat doubtful form (3306), not safely separable from this species, was collected on the hills of Rio Hondo, August, 1890.

Pteris cretica, L. (1985). Springy places, Sierra Madre, near Monterey, June, 1888.

Pteris longifolia, L. (3359*a*). Calcareous banks and ledges, Tamasopo Cañon, November, 1890; and with it 3359*b*, var. *sub-bipinnata*, n. var.; the latter a very remarkable form, with the lower pinnæ longer than those above, pinnately divided, with the lower pinnules gradually reduced, as in a normal frond of the species, and the apices very much prolonged. Stipes and rachis stout, and especially at the base, and surrounding the crown clothed with a coarse shaggy wool.

Pteris quadriaurita, Retz (3411). Tamasopo Cañon, September, 1890.

Scolopendrium nigripes, Hooker (3366). Mossy ledges, Tamasopo Cañon, November, 1890.

Plant Notes.

Our Native Nelumbo.

THE Nelumbo of the Orient has so occupied the attention of the public of late years since it has become a familiar object in many public and private gardens that it is not always remembered that North America possesses a second species of the same genus. Less beautiful, perhaps, than its Old World relative, the American Nelumbo, or Water Chinquapin as it is sometimes called from a fancied resemblance of its seeds to those of the true Chinquapin, is one of the most interesting and striking of all hardy aquatic plants, and there are many ponds in the eastern states which might well be covered with its great circular cupped leaves and pale yellow flowers raised high above the surface of the water.

Nelumbo lutea is by no means a rare plant in the Mississippi basin and in many of the states which border the Great Lakes. It grows sparingly in the Connecticut River near Hartford and at a few other places in the east, although it was probably introduced by the Indians into eastern rivers, as it is so rare and local in this part of the country that it does not appear probable that it grew here without man's assistance. And the theory of the spread of this plant beyond its natural limits by the help of the Indians is the more probable because it is known to have furnished them with an important article of food in its farinaceous tubers and sweet, mealy seeds. These last are still gathered in some parts of the west and north-west and ground into flour. Dr. William P. C. Barton, of Philadelphia, published just seventy years ago in his fragmentary "Flora of North America" a beautifully colored plate of this plant, and in his description tells us that the boys about Philadelphia gathered the green and succulent half-ripe seed-pods from the marshy banks of the Delaware and found a ready sale for them among people who considered them a delicate and nutritious luxury. Perhaps some of the readers of Garden and Forest can tell us whether the Nelumbo is still found in Dr. Barton's station in the Delaware, or if it has, like many other plants, been forced to succumb before the march of civilization.

Our illustration on page 557, from a photograph made by Mr. D. Burnett, of Olney, Illinois, represents a pond in the southern part of that state covered with the Nelumbo in flower, and gives an excellent idea of how this plant appears on ponds and lagoons in many parts of the United States.

Foreign Correspondence.

London Letter.

Iron vs. Wood in Glass Houses.—A correspondent in the *Gardeners' Chronicle* this week raises the question, Why should not iron be substituted for wood in the construction of plant-houses? There is a general objection to the use of iron, because of its supposed contraction and expansion under the influence of heat and cold, the condensation of moisture inside and consequent production of "drip," and the excessive radiation of heat from iron as compared with wood. My own observation leads me to doubt whether these objections really have any foundation in fact. There are several large houses at Kew in which the rafters and sashes are wholly iron, and neither contraction nor expansion in them is sufficient to do any damage to the glass or even to loosen it. Drip is easily prevented by a proper pitch of roof, and by means of channels cast in the iron rafters. Radiation is not easily measured, but I do not think there is any appreciable difference between the loss of heat from wood and iron houses; at any rate, the quantity of piping for the one is the same as for the other. On the other side, a great deal must be urged in favor of iron as compared with wood. First cost is, of course, greater; but an iron house need not cost more than, say, twice as much as wood, while it will last at least ten times as long, as is proved by the old Victoria house at Kew, which was built wholly of iron. Then comes the question of light, and here iron is immeasurably superior to wood. Sashes and rafters, if made of iron, may be so thin as scarcely to obstruct any light, and yet be strong enough for the largest houses and in the most exposed places. A wood structure, if lightly built, soon gets out of repair and is unsafe. In some gardens, famous for good cultivation, I know iron houses are in favor. I will mention one—that of M. Warocque, of Mariemont, near Brussels, whose splendidly cultivated Cattleyas, Odontoglossums, Vandas and other plants are the subject of a most eulogistic article in the *Gardeners' Chronicle* last week by no less an authority than Sir Trevor Laurence. The houses in which these plants are grown are iron, and that they are liked is proved by the fact that a new iron house for Cattleyas is about to be erected. I know the stereotyped objection to the use of iron for sashes and rafters, that it is bad for plants. But is it? Has any one ever proved it so? The three essential qualities in a plant-house are, I take it, durability, lightness and convenience. In two of these iron is superior to wood, and in the third I am inclined to think it is about equal.

[The tendency in America is steadily toward the most durable materials for greenhouses. The fear of losing heat by radiation from metal is considered groundless.—Ed.]

Effect of Fog on Plants.—The injury done to plants by winter fogs in the neighborhood of large towns has recently assumed quite alarming proportions. The subject has been under investigation by a committee of scientific men assisted by the Royal Society, and the first installment toward a report on the whole matter was contributed in the spring of this year by Dr. Oliver, of Kew. A second contribution to this end was recently made by Dr. W. J. Russell, F. R. S., in the form of a paper read before the Hygienic Congress, and which is now published in *Nature*. Dr. Russell deals with the whole subject of town fogs and their effects upon man as well as plants. An analysis of the fog-deposit collected from the roofs of glass houses at Kew, and which had been deposited in a fortnight in February, is most interesting. It is as follows: Carbon, 42.5 per cent.; hydrocarbon, 4.8 per cent.; sulphuric acid, 4.0 per cent.; hydrochloric acid, .8 per cent.; ammonia, 1.1 per cent.; mineral matter (silica iron), 41.5 per cent.; water, 5.3 per cent. Total, 100.0 per cent.

"These analyses give, I believe, for the first time a definite account of the composition of a fog-deposit. Soot and dust are by far its principal constituents, rendered sticky and coherent by hydrocarbons, but I should like to give

you the striking description which Professor Thiselton Dyer has sent me of this deposit He says, 'It was like a brown paint, it would not wash off with water, and could only be scraped off with a knife. It thickly coated all the leaves of the evergreens, and upon what have not yet been shed it still remains.' . . With regard to plants under glass the effect of fog is of two kinds: (1) That caused by diminished light. This checks transpiration. The plants are therefore in the condition of being overwatered. A well-known consequence of this is to make them shed their leaves wholesale. Many valuable plants which ought to be well furnished with foliage become perfectly bare, and it is impossible ever again to recover them into sightly specimens. (2) The toxic influence of the fog. This is most striking. I attribute it in the main to sulphurous acid, though I cannot help suspecting that some hydrocarbon may also have something to do with it. The toxic effect varies from one plant to another; some are scarcely injured, others are practically killed. I hope you will be able to arouse some interest in this horrible plague. If the visitation of last year is annually repeated it must in time make all refined horticulture impossible in the vicinity of London." That the number of fogs experienced in London is annually increasing is shown by the statement that while between 1870 and 1875 the number recorded for the three months December, January and February was ninety-three, the number for a similar period ending last year had increased to 156. Dr. Russell does not write hopefully of the possibility of getting rid of this winter plague. He says as long as coal is burnt we shall have dense fogs, and it does not appear probable that a substitute will be found for coal.

FRUIT.—Arrangements are being made to hold a great National and International Exhibition of Fruit in London in October, 1892. It is expected that all the English societies interested in the cultivation of fruit will co-operate to insure the success of this exhibition. A committee has been appointed to formulate a scheme, and a guarantee fund has been started. Should the scheme be practicable, and there does not appear to be any reason why it should not, this exhibition ought to prove an important event in horticulture, and even in agriculture, for there are signs now of the cultivation of fruit being taken in hand by farmers. Sir James Whitehead has almost promised on behalf of the corporation the use, free of charge, of a site on the Thames embankment for the exhibition, which will be extended over a period of about ten days. It is anticipated that the foreign section of this exhibition will be a prominent feature, and among foreign growers of fruits for the English market the United States occupies a very prominent place. No such exhibition has been held in England since 1866, when a great show of fruit was held in London and was so successful that after paying all expenses there was sufficient profit to purchase the Lindley Library for the Royal Horticultural Society and to present £1,000 to the Gardeners' Benevolent Institution.

I forward you a copy of a leaflet which is being distributed all over England by the Royal Horticultural Society. It is, as you will see, intended chiefly for cottagers and small farmers, and is meant to afford them reliable information on the best kinds of fruit for general cultivation. The list, with cultural notes, has been drawn up by forty leading experts in fruit-culture in England. It gives the names of the twelve best apples for cooking, the eight best apples for dessert, the twelve best pears, twelve best plums, and a selection of cherries, damsons, raspberries, currants, gooseberries and strawberries. The habits, time of fruiting and keeping qualities of each are given, with a few important directions on planting, pruning, manuring, etc. The aim has been to make the list applicable as far as possible to the whole of England, and to include only varieties possessing the four most necessary characteristics of quality, fertility, good growth and hardiness. The leaflet consists of eight pages, and it is to be had at the rate of 2s. 6d. per 100 copies.

Kew. *W. Watson.*

Fig. 87.—A Pond in Southern Illinois, covered with the Water Chinquapin (*Nelumbo luteum*).—See page 556.

Cultural Department.

The Grape Crop.

THE grape harvest of 1891 will long be remembered for its abundance and low prices, which was, doubtless, materially diminished by the superabundance of peaches in market. Hereabout, however, the volume of the grape crop was not as large in the aggregate as in previous seasons, though the quality was quite up to the average. The vines and fruit were exceptionally free from fungal diseases, and where fungicides were seasonably applied very little rot developed at any time during the season, while mildew was not observed till late in August. This unusual healthy condition might be attributed to the judicious use of remedies during this and previous seasons were it not for the fact that vines which had never been treated heretofore carried as fine and healthy fruit and foliage as others. The true reason for this exemption from disease is, doubtless, that the season was unfavorable to the growth of fungi. To certain conditions of the season may also be due the imperfect pollination and poor setting of the fruit, which helped to diminish the crop.

The cause for this imperfect setting is not easily determined. Conditions of temperature and moisture seemed favorable, as far as we could judge, but buds started unevenly, and clusters were much smaller than usual; yet some few varieties were not affected in this way, and exceeded all past experience, notably the Lindley (Rogers' Number 9), generally a poor setter, but this season producing the largest and finest clusters I have ever grown.

A severe drought prevailed in this section all summer. With two exceptions, up to late in August our showers had merely laid the dust, and this, too, may have helped to cause imperfect setting; and yet the growth of vines was strong, yielding an abundance of well-ripened wood.

Just after the seeds had hardened and the development of the fruit took place rains came for a few days, and this sudden addition of moisture forced a growth of pulp which seemed too rapid for the growth of the skin, and the consequent bursting caused great loss. This inability of the skin to grow as fast as the pulp, or lack of strength to hold its expanding contents, is a fatal defect in many otherwise excellent varieties. Toughness of skin and a tight hold on the peduncle are two invaluable requisites for any grape. No matter how good it may be in other respects, weakness in either of these points is fatal. The critical period, when these weaknesses are apparent, varies with different kinds and varies in different seasons. This enables a variety to pass through a sudden excess of moisture at one time or season with safety, when it would fail if this moisture occurred a few days earlier or later. This seems to explain why some varieties crack badly one season and not another. Among the varieties that cracked badly this season were the following, and I add to each the percentage of loss from this cause: Moore's Early, fifty per cent.; Worden, fifteen per cent.; Duchess, forty per cent.; Brant, fifty per cent.; Canada, fifty per cent.; Cambridge, ten per cent.; Lady, twenty-five per cent.; Salem, seventy-five per cent.; Massasoit, seventy-five per cent.; Concord, twenty per cent.; Jefferson, forty per cent.; Packlington, twenty-five per cent.; and Woodruff Red, twenty-five per cent.

Notwithstanding the troubles which beset the vineyards in this section, the yield throughout the country was immense, our markets were glutted, and prices ruled lower than ever. A correspondent in southern New Jersey informs me that he shipped half a ton of fine grapes to New York, in ten-pound baskets. The returns were, "Sold for ten cents a basket." Of course he did not need the advice to "Forward no more," which accompanied the return. And yet the wise counsellors who are writing about the causes of agricultural depression are constantly advising farmers to plant vineyards and orchards. I have often wished that some of these glib writers would go into commercial fruit-growing and teach us how to get rich. A few seasons like the past would dissipate the dreams of certain and immense profits. The situation was bad enough even before the stupid action of the New York Board of Health still further depressed prices. The newspapers reported that arsenic had been used by vine-dressers to suppress phylloxera. They had heard of copper sulphate and the rot, but Paris Green and the phylloxera looked more alarming in the head-lines. Still, this was quite as accurate as the report of a city chemist who stated that the Grape rot was caused by an insect.

The hot dry weather of September brought to perfection some varieties that are usually so late as to be classed among the uncertain ones. Black Defiance, Catawba, Roger's 32, and Isabella were among them. The fruit of Isabella was finer than I have grown for years. Of the newer varieties, Empire State continues to disappoint; Moyer is no larger than Delaware, and a feeble-growing vine; Berckmans is far better every way, except in size; Green Mountain is early and good; promises to be the best early white Grape. Colerain promises to be its peer in every respect save earliness; both vines are good growers; their weak points will develop in a year or two's trial. The best of all the new varieties this season was the Brilliant, originated by T. V. Munson, of Texas. This has fruited with me for the third time, and this season developed most excellent qualities. The vine is a good grower and appears hardy, but will suffer from mildew in bad seasons unless protected by spraying. The clusters were medium to large, berries the same, and the quality excellent. It is some satisfaction to plant and care for Grapes of this class, but a great many of the new introductions only tend to discouragement. Our list of Grapes, like our list of all other fruits, is far too long, and needs weeding out and pruning down. The probationary time of many new ones on trial is about up.

What is needed to relieve this oppressed industry, so that fruit-growers can realize a profit out of their investment equal to the labor they employ, is increased consumption or diminished production or less profits to the middle-men. Notwithstanding the low wholesale prices, from which the growers are compelled to find their profits, if any, the retailers have generally exacted ten cents per pound from the consumer. This, in many cases, represents a profit of 100 per cent. clear of all expenses. It is evident that the profit in the business is in fruit-selling and not in fruit-growing.

The profits of fruit-growing are sure and certain when pursued for one's own family consumption. No family ever satisfies its natural longing for good fruit as thoroughly when the fruit comes from the market as when it is furnished by trees and vines on home grounds. And then there is the added pleasure of watching its growth and the satisfaction which comes from superior quality, with perfect ripeness and assured freshness.

Montclair, N. J. *E. Williams.*

Fruits and Topography.

THERE are a good many mysteries attendant upon the relations which plainly exist between the growth of tree-fruits and the lay of the land. My experience and observation for more than half a century, first in the Kennebec valley of Maine, subsequently in the slightly elevated marine plain of eastern Massachusetts, afterward in the Ohio and Mississippi valleys, and later among the hills of north-eastern Vermont and the valleys running northward to the St. Lawrence River, have helped me to solve some of these mysteries. But there is large room remaining for future investigations, especially as regards special exposures; the effect of winds in modifying temperature; the relation of soils and manures to the resistance of trees against cold; the action of the sun in winter; the protective effect of snow; but, more than all else, the understanding of the rivers of the air in their downward flow.

I have orchards on a level plain near to Lake Memphremagog, on the east shore, and other younger orchards planted upon my farm two miles east of the lake, not less than 200 feet above it. Still other orchards, well cared for, are planted with trees from my nurseries upon the west shore, at greater or less distances from and above the water. All of these afford opportunities for studying the effects of climate in a region where twenty-five years ago it was firmly believed by its long-time residents that Apple-culture was quite impracticable, except for the Siberian Crabs and their seedlings. This unfavorable section extends south beyond the divide between the St. Lawrence valley and the Connecticut as far as St. Johnsbury; east beyond the Connecticut across New Hampshire, and some way into Maine; west across the Green Mountains nearly to Lake Champlain, and north to the immediate shores of the St. Lawrence, where around and above Montreal to Lakes Champlain and Ontario lies a region of somewhat milder winter climate.

The almost hardy varieties are those from which we can learn the most on the question of climatic effects, and I was early made aware that the location of my first orchards was one requiring hardier trees than were demanded for the opposite (western) shore and for the hills on both sides of the lake. That on the immediate lake-shore we often escaped light frosts in spring and fall, which struck sharply higher up, was no evidence that winter's cold would not practically destroy or prevent the profitable culture of a number of tree-fruits there which did well at higher elevations. Among these test-sorts are the Red Astrachan, Tolman Sweet and Pewaukee

Apples, and the Flemish Beauty Pear. At my lake-shore farm I cannot make them thrive, but they all do much better less than two miles away across the water, and 200 feet higher on my own side of it.

The cause is not quite the same in all cases. In fact I am not quite sure that I fully know the cause why fruit-trees that fail on the east shore endure the winter on the west. It may be in the different angle which the trunks of trees on the respective slopes present to the sun at different times of the day; or it may be in the greater angle of the western shore, which slopes steeply to the lake, while the eastern is a broad plain that receives the down-pouring cold air-streams from the eastern hills and retains them, while similar air-currents on the west discharge themselves quickly upon and spread over the lake.

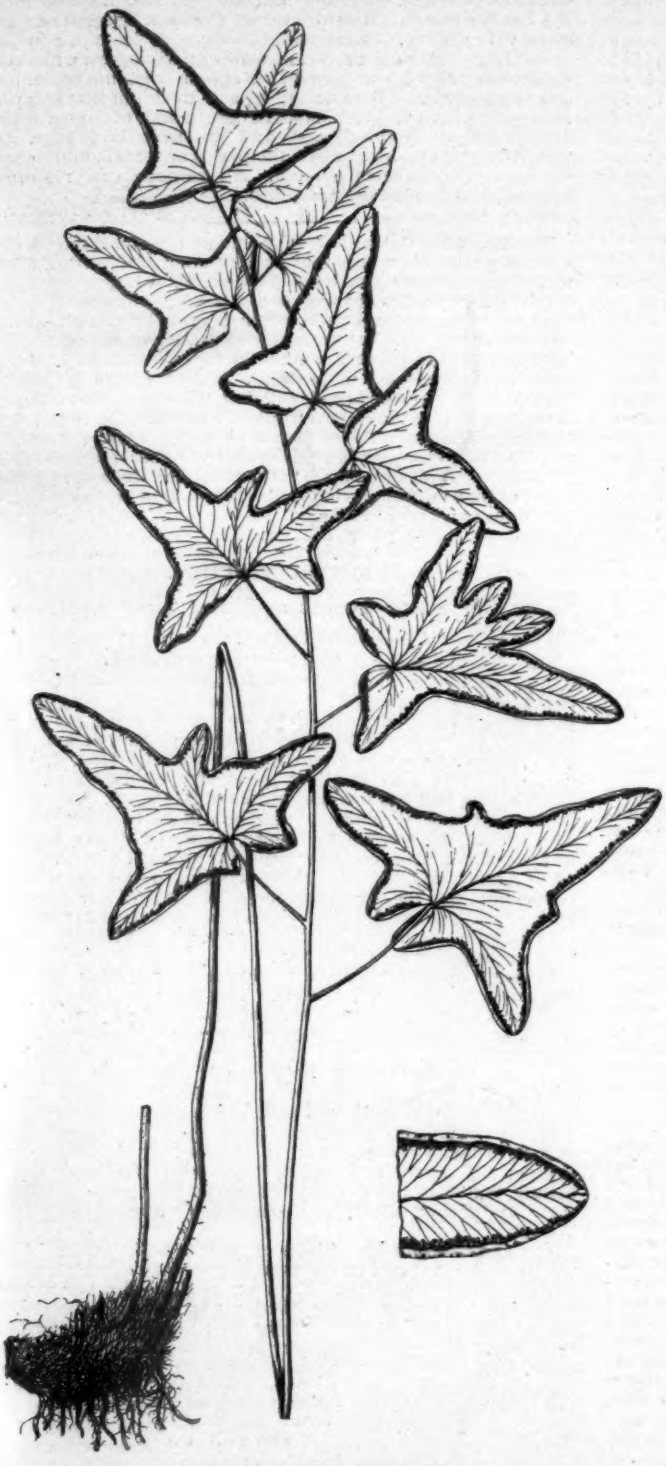


Fig. 88.—Pellæa Pringlei, n. sp.—See page 555.

But one thing is certain, namely, that these cold, invisible torrents of air, pouring down from the high valleys, must be taken account of in the selection of varieties, especially for a commercial orchard. The land east of Memphremagog rises in great steps, about four miles wide, each forming nearly level areas, upon which are some of the finest grain and dairy farms in New England. On the first and second of these narrow plains or benches corn is grown without difficulty; but on those higher up it is planted only for fodder and ensilage, on account of late and early frosts; though otherwise these high farms are rather the best in their yield of the small grains, potatoes and grass, and are by no means inferior for orcharding, the winter's severest cold being less than below, while the shorter spring and fall ensures better keeping quality in the fruit. It would surprise some to know that in our hills, and in northern Maine and Canada, the Oldenburgh apple is often kept far into winter; and this also throws a clear light upon the fact, often commented upon as unfavorable to the truth of what is stated by Russians in regard to their winter fruits, which, in some cases, hardly keep into winter at all in Iowa and Minnesota. But when we remember the differences caused by both latitude and elevation these discrepancies are reconciled. Seeing the differences made in the same direction within a distance of twenty miles in my own county, I am enabled easily to understand that apples from central Russia, between latitudes fifty and sixty degrees, may be all-winter keepers, while the same fruit grown in Iowa and Minnesota, between forty and fifty degrees, may show very differently.

Newport, Vt. *T. H. Hoskins.*

Notes on Chrysanthemums.

As we have had no public competition of Chrysanthemum-growers in New York for some years, the recent show in Madison Square Garden was of great interest to those who have watched the rise of this flower into favor. John Thorpe labored for some years to convince the florists that the Chrysanthemum was destined to become of great value as a market flower, but for a time he had small success. But, judging from the recent show, it would seem that nearly all the prominent market-growers of cut flowers are now large growers of Chrysanthemums, and we have been able to observe the results which have followed their development into true greenhouse plants. The approved method of cultivation now seems to be the growing of plants entirely under glass, planted out either on benches or in solid beds. This method seems to have its dangers. The flowers at the recent show were not lacking in that refinement and purity of color which is shown in flowers grown under glass, and they were of good size and form, with abundant foliage. But why should flowers, some of which were apparently as solid as a stone-cutter's mallet one day, melt off the next as rapidly as some roses. This certainly is not the best culture of the Chrysanthemum, which, when properly grown, is one of the most lasting of flowers. Before me, as I write, is a vase of flowers in fair freshness, and they were plucked a fortnight since, and have had to endure the atmosphere of a furnace-heated room. I do not mean to say that soft flowers were universal at the late exhibition here, for there were notable exceptions, but they were so frequent as to be a subject of much comment.

The cultivation of the Chrysanthemum is so well understood now, and it is such a simple matter to secure large well-formed blooms, that there is little excuse for the production of such disappointing flowers, the fault, of course, being caused by overheating and lack of air in the houses. The fact cannot be ignored that the Chrysanthemum is a hardy flower, naturally blooming at a

low temperature, and the closer it is kept to the latter condition the more satisfactory it will prove in all that makes it valuable to the general public. Few persons are interested chiefly in the size of Chrysanthemum-blooms, but all of us enjoy their decorative effect.

The certificates at a flower-show are beyond the comprehension of an ordinary mortal, and one can only ask sometimes what they mean, unless it be to show the kind-heartedness of the judges and their desire to give a helpful advertisement to the originators or owners of new flowers. One is kept busy at this season noting certificates from all quarters, and by the time he has compared notes with other observers the novelties are reduced to a very short list, and he makes a rather longer one of some of the old favorites which continue to come to the front again and again. Still, year by year, we find great gains, some jumping into favor, and some creeping slowly. Such flowers of recent years as Viviand Morel, Mrs. Alpheus Hardy, W. H. Lincoln, Ada Spaulding, Minnie Wanamaker, Mermaid, Lilian Bird, Jessica, etc., leave little to be desired either in form or coloring. Good reliable dark-colored Chrysanthemums seem to be for the future.

Elizabeth, N. J. *J. N. Gerard.*

Fertilizers for Tomatoes.

THERE has always been, among market-growers, a belief that a heavy fertilization of Tomatoes will lessen the yield, and prevalent opinions of this kind among farmers or gardeners, even when no sufficient reason can be given for them, usually turn out, upon careful investigation, to have a basis of truth; and yet, in spite of the belief above mentioned, tests which have been conducted for some years at the various agricultural experiment stations have given almost uniformly larger yields where the land was heavily manured. Of course the character of the soil may have some influence, and the character of the fertilizer may have still more; but a recent bulletin from the Cornell Station is worthy of attention, because, while the experiments recorded still show that heavy fertilization increases the crop, it is also explained that under certain circumstances the popular view of the case may be the true one. The productiveness of a Tomato-plant depends largely upon its earliness or on its ability to give the greatest number of pickings before frost. Therefore, any fertilizer which starts off the plant rapidly in its early growth and hastens the appearance of fruit is beneficial. We can conceive, however, that whenever plant-food that is immediately available is applied late in the season it will cause a vigorous growth of the plant, and thus delay production and ripening of the fruit. The same effect might follow the early application of raw and coarse stable-litter, in which the plant-food cannot be made ready for assimilation until late in the season.

In order to determine the results of a late application of fertilizer, nitrate of soda was used at the rate of ten pounds to seventeen plants at one application, on the 25th of June, a fortnight after the plants were set. On a similar number of plants the same amount of nitrate was applied at intervals of about three weeks, in applications of two and three pounds each. The results showed striking differences. The first lot of plants up to the last week of September gave a much higher yield in the number of fruits to the plant and in the average weight of the crop. After that date, however, the intermittent application of the fertilizer in the second lot was beginning to be felt; and, as frost held off unusually long, this lot, taking the season through, gave the best yield. If, however, the frost had come at a time when it usually does the popular belief would have been vindicated. The rule seems to be that a quick fertilizer, like nitrate of soda, ought not to be applied in this climate as late as the latter part of August. As this fertilizer, however, is readily dissolved in water and escapes in drainage, it is not advisable to make it in one heavy application early in the season, but it should be distributed in different applications, and extended from the time of planting until midsummer. Of course, nitrate of soda is not a complete fertilizer, and both potash and phosphoric acid, in some form, may be needed, too. All these materials are found in good farm-yard manure, and no mistake will be made when this is abundantly applied early in the season, provided it has been thoroughly disintegrated.

A Chrysanthemum Blight.—The particular disease referred to appears upon the leaves of the plant, blotching them with brown until they wither and fall away. The trouble is due to a species of Septoria, and therefore close in kin to many kinds of fungi that prey upon cultivated plants, producing the so-called leaf-spot diseases. This Septoria is propagated from plant to plant by means of long slender spores that are produced in large numbers in pear-shaped bodies imbedded in the surface of the affected portions of the leaf. The diseased spot itself enlarges by means of the threads of the fungus already in the leaf, spreading out laterally into the surrounding healthy tissue. Moisture favors the development of these spots very greatly. Some varieties seem to be more subject to the blight than others, but probably all will take it when conditions are most favorable and the spores or germs of the fungus are present. There is no reason to doubt that spraying the young plants with the standard compounds of copper would do much to check this disease, and thus save the foliage. It is very important to spray when the plants are small, and not delay until the blight is present. No remedy can restore a blighted leaf to a healthy condition.

Rutgers College. *Byron D. Halsted.*

The Vegetable Garden.—Many of these are now covered with a dense growth of weeds that have ripened seed, which, if left, will fill the soil and give trouble for years. A large part of this can be destroyed by burning if the garden is covered with a thick coat of straw and fired when a good breeze is blowing. Straw makes a very hot fire, and even much of the seed which has fallen on the ground can be destroyed in this way. It is a great advantage also to plow the garden in the fall, and if plowed deep the weed-seed still left will be turned down so deeply as to give much less trouble than it would if near the surface. Besides, if the garden is plowed in narrow lands and the dead furrows opened so as to carry off the water, it will dry off so as to admit of being planted much earlier in spring than if left unplowed, and it will also be in much better condition.—*W. F. Brown, in The Tribune.*

Correspondence.

In the Shore Towns of Massachusetts.—III.

To the Editor of Garden and Forest:

Sir,—Marblehead has Crocker Park, a headland on the harbor, given to the town by Hon. Uriah Crocker—a fine view, rocks, no trees, very steep in places, and not safe in its present undefended condition. Railings are needed at the top of the ledges. There is another headland, or portion of a hill-top and slope, which was given to the town by Hon. J. J. H. Gregory. This also affords a good view of the water. The Old Burying Hill has few interments of late years. The title is in the town, and it is much used as a place of public resort. The site of the fort on the shore, occupied during the civil war, has been improved and cared for by the Town Improvement Association with the understanding that it was a public possession, but the owners of the adjacent land have recently built a fence across the area which had been used by the public, enclosing about half of it, and greatly impairing the value of the remainder for public use.

I spent a memorable day with Messrs. Chase, Eliot and Wigglesworth in the Lynn Woods. This tract of 1,600 acres of land and water is a possession of extraordinary importance. No other of the smaller cities of our country has anything to compare with it in extent. It is a region of unspoiled woodland, and it will so remain, as it is not intended that it shall ever be made a park in the ordinary sense of that word. There is an admirable system of roads, which will be extended, and there will be need of shelters at various points. There will be as little artificial construction as possible, no decorative gardening, no perceptible interference with the wild sylvan beauty, which is the essential charm of this great public resort. Its proper official and distinctive name is The Lynn Woods.

The two wolf-pits are objects of great historic value. I have not been able to learn of the existence of any similar remains anywhere in this country. They are perhaps eight or ten feet deep, but have been partly filled up by leaves drifting in. I thought them about eight or nine feet long and three or four feet wide. A recent newspaper article described them as circular, with walls narrowing at the top. I suppose the writer thought wolf-pits ought to have that form. But those I saw are parallelograms with vertical walls, their corners right angles, and, in short, with nothing circular about them. The smooth stone walls were so well laid that they are still not perceptibly out of plumb. These pits should be very carefully protected and preserved that they may never become mere restorations.

Quincy has Merrymount Park, seventy-five acres on the shore, woodland and ponds, given to the city by Hon. Charles

Francis Adams in 1885. It has not been improved very much, as one of the conditions of the gift was that the city should not expend more than $1,000 a year on the park for the first ten years. After this term expires more will be done for its improvement. Faxon Park, about twenty-six acres of woodland, in the region formerly called the South Common, not on the shore, was given to the city by Hon. Henry H. Faxon in 1885. It is not improved much. Before 1885 Quincy had no park or common. The people went to the beaches, and do now, but there are no public holdings on the shore outside of Merrymount Park. The city was incorporated in 1888, and has now 17,000 people. The Village Improvement Society has recently put up a fine granite fountain, costing about $6,000, on land belonging to the Street Department, formerly a part of the old Training-field.

Weymouth is fortunate in the possession of Webb Park, which has recently been presented to the inhabitants of the town by Mrs. Margaret T. W. Merrill, of Portland, and Mrs. Nancy B. Jackson, of Boston. The donors are descendants of the late Christopher Webb, a prominent lawyer of Weymouth, who represented the town in the General Court for thirty years or more. This park-land was formerly a part of the estate of Major John White, who owned a large farm here a hundred years ago. Christopher Webb married his daughter, Miss Susan White, and this is a portion of her inheritance from her father's estate. Its area is eight acres. It lies high, overlooking all the Weymouth Fore River country and the numerous islands off shore. In the deed of gift the donors say the land is given to the town "in consideration of our regard for our birthplace and as a memorial of our honored parents." It was an act of far-sighted beneficence, an admirable and enduring example to the people of other Massachusetts towns.

There is a small common at Hingham Centre, perhaps two or three acres. Fountain Square, near Hingham Station, is little more than a slight expansion of the streets which cross each other diagonally there. There are five large Elms here, planted about seventy years ago. There are no other public holdings. The town formerly owned a considerable area along the town brook, but sold it at low rates long ago. Much of this land is now built upon, and the town has repurchased some of it in later times, paying a good price. Melville's Garden, at Downer's Landing, a noted resort on the shore, had 275,000 visitors during the season of 1891. It is a private holding, with restaurant, etc., and brings a great revenue to its proprietor. Such resorts are sure to be multiplied in the shore towns, and to attract an increasing number of visitors from the cities and from the interior of the country. In Hingham I saw the Old Place which has been made historic by the story of its renewal, which Mrs. Robbins has told with such extraordinary vivaciousness and interest in GARDEN AND FOREST. The Agricultural Society has large grounds at Hingham, but they are not used as a place of public resort. The town ought to have a park or reservation on the shore. There are many things of historic interest here, and there should be an increase of popular interest and knowledge regarding them.

There are no public holdings in the town of Hull. The great beach at Nantasket is all private property. Some of the hill-tops and great reaches of shore lands should belong to the town, or to the state, for the use of the myriads of people from the cities who throng the island every summer.

Cohasset has one of the prettiest commons I have seen in any village: about four acres, fine trees and grass, enclosed with a fence of posts with two chains. A church, built in 1743, stands within, about the middle of one side. There is an enchanting view of the water and meadow shores. The common is obviously incomplete at this end, and I was told that the town owns an area outside at that point, and that a man living near had obtained permission to enclose a part of this valuable public holding for his own private use. Even if this were included the common would be small for the public need. By permitting such occupancy several of the shore towns have lost title to land which would now be an important public possession. There is a comparatively roomy playground around the new Osgood school, and the building has more architectural character and beauty than I have seen anywhere else in a schoolhouse.

The name Scituate appears to be a corruption of an Indian word, Sa-tu-it, accented on the second syllable, and said to mean brook, or cold brook. It is still in use. I think the meaning of Indian names is mostly uncertain and a matter of guess-work now, and the sound is more important, when it is pleasant or musical. We still have Cotuit, and some other names very similar in sound. The town had formerly extensive holdings on the beach. Deane's History says: "The beaches from the third cliff eastward to the river's mouth have been defended from waste by repeated acts of the town, forbidding the removing of stones, &c. Two landings at the harbor have been preserved by the town, and frequently surveyed for the purpose of keeping their bounds. These came into the town's possession in 1704, when the Conihassett Partners surrendered their highways, etc., to the town." These important shore lands have mostly been forcibly taken possession of and appropriated to their own use by some of the owners of contiguous grounds. The town has been the theatre of one of the great beach controversies of the country. It has vainly expended thousands of dollars in the effort to defend its rights on the shore. The people have grown weary of the unavailing struggle, and although the courts have not rendered a full decision on the merits of the case, it is not likely that the town will make any further effort to obtain redress. The men who have seized the public property say to the people of the town, "Come on this beach if you dare!" and if any citizen drives his team on the shore in the exercise of the ancient right to collect seaweed or drift-stuff they meet him with weapons and violence, attack his horses with pitchforks, and are thus able to "hold the fort" against all efforts to maintain the public right to the beach.

In early times the town had a large Training-field. A long time ago a man sat down on it and stayed there, and the town could not get him off, or it did not, and some of his family are living there now. A fragment of the old Training-field still remains unappropriated to private use, and now forms a small common.

The records say that when this region was first settled by white men the shores of the bays here were skirted with forest-trees quite to the water's edge, and some of the earliest entries mention the Live Oak forests in the vicinity of Coleman's Hills. What tree was this? Walnut-tree Hill was so named because the Black Walnut was indigenous there. It was a wild region of woods and waters. There were many beaver-dams, and for nearly a hundred years the town voted every year a bounty for the destruction of wolves. There is still a Town Swamp on the maps here, but the last of this public holding was assigned to various citizens long ago. I copied from the Town Records of 1706 the statement that eighty lots of Cedar-swamp were conveyed to individuals by a committee appointed by the town in February of that year.

At Hobart's Landing, on North River, in Scituate, ships were built as early as 1650. Here the ship Columbia (Captain Kendrick) was built by James Briggs in 1773. This was the first ship to visit the north-west coast from this country. Captain Kendrick explored the River Oregon and named it after his ship, the Columbia. Many of the whale-ships employed by the people of New Bedford and Nantucket during the latter half of the last century and the early part of this were built in Scituate. They generally rated from 300 to 350 tons. The largest of which I find any record was built in 1812 by William Delano, nearly 500 tons.

In 1830 Captain Samuel Barker received a premium from the Plymouth Agricultural Society for the best crop of rye in the country, and two other citizens had premiums the same year for general improvement of their farms. The year before Colonel James Curtis had received a donation for general improvement of his farm, and Thatcher Tilden a premium for the best crop of rye. I think that agriculture in Scituate has rather declined than advanced since then. An old cemetery here has been much neglected and abused. A public highway has been run through it, destroying many of the graves and head-stones. The sites of some of the smaller burying-places mentioned in early histories of the town are probably indistinguishable now. I hope soon to learn whether this is so or not.

Queen Ann's Corner has its name from Ann Whiton, who kept a tavern there in 1730 and many years afterward, where the Plymouth road crosses the town line to Hingham. I copied the earliest marriage notice preserved in the Town Records, "Resolved White, to Judith, daughter of Mr. William Vassall, November 25th, 1640." Resolved White came to Plymouth in the Mayflower with the first company of pilgrims in 1620, and had lands laid out to him in Scituate in 1638.

In Scituate I saw the birthplace of Samuel Woodworth, the author of the poem "The Old Oaken Bucket." He was born here January 13th, 1785. He early chose to be a printer, and was apprenticed to Benjamin Russell, editor of the *Columbian Centinel*, in Boston. He became a busy journalist and prolific author. He went to New York City in 1809, and in 1823 was associated with George P. Morris in establishing the *Mirror*. The Old Oaken Bucket poem was written in the spring or summer of 1817. Mr. Woodworth was then living in Duane Street. He came home to dinner from his office, near the foot

of Wall Street, on a warm day and took a drink of water, saying that he would rather have a drink from the old well at home. His wife said, "Selim, that's a pretty subject for a poem," and he wrote it. I have read an autograph letter written by him in August, 1835, in which he says that his second son, twenty years of age, was at that time on a three-years voyage to the Pacific Ocean as captain's clerk to Captain Morrell, who discovered the Cannibal Islands. Mr. Woodworth died December 9th, 1842, and was buried in New York, but his body was afterward removed to San Francisco. I wish to learn where it now lies, and whether there is any monument over his dust. I think the birthplace should be marked in some appropriate way, and should like to communicate with some of his descendants, in order to consult them regarding the matter. The well and the little old mill appear to be the same as when the poet saw them daily in his boyhood. I think we ought to preserve the well, and perhaps the millstones, which are still in use. The birthplace is visited by an increasing number of the summer dwellers on that part of the shore, sometimes as many as sixty in a day. The interest which attracts people to a poet's birthplace is wholesome and should be encouraged, but it cannot always be convenient in its results for the courteous family now having the care of the celebrated well. Pleasant attention is given to all visitors, and fees, frequently offered, are always refused. *J. B. Harrison.*

Boston, Mass.

The White River Forest Reservation.

To the Editor of Garden and Forest:

Sir,—Colorado has the honor of possessing the first forest-reservation under the act of Congress passed at the last session. This is "The White River Forest Reservation," for which a proclamation was issued by the President on October 17, 1891. I have carefully examined the whole tract, and a general description of it would, no doubt, be of interest to the readers of Garden and Forest.

This reservation lies in the western part of the state, and comprises the eastern portions of the counties of Garfield and Rio Blanco. It is just over the crest of the Continental Divide, where the rivers run almost due west, and where the greater rainfall produces a larger forest-growth than on the eastern side. The tract is rectangular, extending about fifty miles north and south and forty miles east and west, beginning about seven miles north of Glenwood and ten miles east of Meeker. It therefore has an area of about 2,000 square miles, or about 1,350,000 acres. Three rivers receive a large portion of their water here. In the southern part its slopes drain into the Grand River, which flows past its border. In the centre, near its eastern boundary, rise the White River and the many small streams which form its head-waters. In the northern portion rises the Williams River, the main tributary of the Yampa, which, like the White River, empties into the Green River near the Utah line.

The reservation is made to cover what is known as the White River Plateau, which, although broken with hill and valley, and nowhere strictly level, is crossed by no mountain ranges, and has a general level character, varying in altitude from 8,000 to 11,000 feet, with here and there ragged peaks rising as high as 12,000 feet. The formation is volcanic, and the immense forces which threw up these bold cliffs and great rocks are visible everywhere, forming a peculiarly grand and sublime scenery.

About two-thirds of the surface is covered with a dense forest, in some places almost impenetrable, consisting of one deciduous and three coniferous species. Each species has its own habitat or level, and seldom encroaches upon that of the other. The first tree we meet is the Aspen, at an altitude of about 8,000 feet. Above this comes the Red or Douglas Spruce (*Pseudotsuga taxifolia*) at an altitude of 8,000 to 9,000 feet, and from this to the timber-line, 9,000 to 11,000 feet, is the White or Engelmann Spruce (*Picea Engelmanni*). With the Engelmann Spruce, at an altitude of 9,000 to 10,000 feet, is mingled in large numbers the Balsam Fir (*Abies lasciocarpa*). But this tree is of little value commercially, so that the forests of this reservation may be said to consist of Red and White Spruce. Grand trees they are, rising slim and straight like a column of verdure to a great height, their trunks perfect, without a bend, and as straight as ship-masts. Many have reached their maturity, and are toppling to their fall. The forest-floor is covered with dead trunks in all stages of decay, among which, and fed by them, are young trees of every age. The Red Spruce is the more valuable timber-tree, and being easily reached on the lower slopes is cut to a considerable extent. The White Spruce forests are so inaccessible as to be of little commercial value, at least for many years to come. At present the main object for the reservation is to conserve the water for irrigation in the valleys below.

The soil is in many places boggy, and the whole country is full of springs and little rivulets. Wherever the nature of the ground will allow, lakes are formed of all sizes, from fifty feet to three miles across. On the highest portion of the plateau, where the surface is less broken and opportunities are given for the water to accumulate, the little lakes are innumerable, and one may ride for hours among them. This reservation will be the means of storing an immense quantity of water, which will be of incalculable value to the wide valleys in western Colorado and Utah, through which flow the three rivers which largely receive their supply from this region. In the winter the accumulation of snow is immense, lying in many places twenty feet deep, and never less than six feet, and not disappearing until July. The beneficial effects of the forest upon this mass of snow is evident to any student of its influences.

The reservation contains magnificent scenery, which in its way surpasses that of any other region. From the highest peak, Mt. Marvine, a little over 12,000 feet in altitude, a most extensive view can be obtained, which will repay the adventurous climber. At his feet is spread the whole of the reservation. He can note the nature and extent of the forest, and the open parks and valleys. He can follow the course of the large streams and rivers, until they lose themselves in the distance. He can point out the peaks of the reservation, and beyond them the higher ranges, white with snow, which bound the horizon as far as the eye can reach. Few more attractive places than this reservation can be found for the tourist, and a trip through this region is well worth any trouble. It must be done on horseback, with guides and a camping outfit. Glenwood Springs, a well-known watering-place on the Denver and Rio Grande Railroad, is the best place to start from.

Game abounds in this region. The lakes and streams are full of trout; and elk and deer, bear and mountain lion roam the woods. But the large animals are becoming scarce, and some method of game preservation must be adopted at once to prevent the total destruction of the deer and elk.

Perhaps in no state or territory are the forest-reservations more important than in Colorado. For, besides preserving the timber, they prevent the diminution of the waters for irrigation, without which the agricultural and fruit-growing industries, now fast becoming most important, would languish and fail. Several other reservations have already been asked, and still others are in contemplation. After long waiting it seems that we have now the opportunity to protect our streams, and it is intended to push the movement now begun until the head-waters of all Colorado rivers are reserved.

Colorado Springs. *George H. Parsons.*

The Specific Name of the Texan Cercis.

To the Editor of Garden and Forest:

Sir,—I have read with some surprise in Professor Sargent's "Notes" upon the synonymy of the Texan Red Bud (page 448, *supra*) that he proposes to call it *Cercis Texensis;* for I thought I was quite familiar with the fact that it had been duly published by Dr. Gray in the "Plantæ Lindheimerianæ," as long ago as 1850, under the name *C. reniformis*, taken up from Dr. Engelmann's manuscript. Only a glance at the place thus referred to is needed to show that my impression was correct. It was altogether erroneous to have stated, as was done in the "Botany of California," that up to 1876 *C. reniformis* had remained a manuscript name. The supposition of Professor Sargent appears to be that, since Dr. Gray did not himself recognize in this shrub of the south-west anything beyond a mere form of *C. occidentalis*, he could not, or did not, give due publication to the name *C. reniformis*, though what logical or historical reason he may have for the supposition I cannot imagine. While Dr. Gray did not adopt Dr. Engelmann's opinion, he, nevertheless, conceived it to be an opinion worth publishing, and published it, at the same time appending the name by which it was intended the species should be known in case specific rank should at some future day be generally conceded to it. It is certain that Dr. Gray had no other purpose in then printing the name *C. reniformis*, along with the means of identifying it, but this, that his esteemed collaborator's proposed name should forever designate the species in case it should be accounted a species. He did it in order to preclude all possibility of Dr. Engelmann's losing his right to the name. It was, in his intent, an effectual preventive of any possible future *C. Texensis*, for example. This provisional

publication of another's species, under just such protest, but with the certain effect of securing to the species its earliest proposed name in case of its acceptance as a species, was done over and over again by Dr. Gray, as by many another eminent botanist. I have never before heard the tenability of such a name called in question, and I am sure the verdict of botanists would be that, as an indubitably valid name for the Texan Red Bud, *C. reniformis* antedates *C. Texensis* by forty-one years.

University of California. *Edward L. Greene.*

[The point made by our correspondent relates to one of those questions of nomenclature about which different authors have maintained different views. The name *Cercis reniformis* is not Engelmann's, for he never published it. It is not Gray's name, for Gray did not adopt it, although he referred to it in the work cited by Professor Greene. Brewer & Watson mentioned it in "The Flora of California" (1876) with a short descriptive phrase, so that they must be considered the real authors of *Cercis reniformis*, whether that name is retained or is considered a synonym.—ED.]

The Acorn Crop.

To the Editor of GARDEN AND FOREST:

Sir,—Referring to the failure of the acorn crop in Minnesota, as recorded in a note in your issue of October 21st, I would say that in this section acorns are very abundant. The Bur Oaks, of which there are numerous cultivated trees here, are unusually full. So also are the White Oaks, Swamp White Oaks, Rock Chestnut Oaks, Black Oaks, Scarlet Oaks, Red Oaks, Pin Oaks, Spanish Oaks, Post Oaks, Black Jack and Willow Oaks, all of which are here in their wild state. That there are no acorns on the Minneapolis Bur Oaks is the reverse of what I should expect. I have occasion to be interested in the acorn crop every year, and think I can safely say that, as a rule, a failure in one part of the northern states means a failure in all parts of them. That is, if the Scarlet Oaks of a given locality fail to yield acorns it is almost useless to look elsewhere for them, and the same is true of all other kinds. But this rule does not hold good in the southern states. To my knowledge, for perhaps twenty-five years past, demands there for acorns of *Quercus Catesbæi* and *Q. aquatica*, made yearly, have always been met. Referring again to the Bur Oak, the large specimen in Bartram Park here is unusually full of fruit this season, but a tree of *Q. lyrata*, which is near it, has hardly an acorn on it.

Germantown, Pa. *Joseph Meehan.*

Periodical Literature.

As represented on a detailed map of any important county in any of our states, says Mr. Isaac B. Potter in the November *Forum*, our country roads show an enormous extension, and "three of our states can be easily selected in which the total length of public roads, exclusive of town and city streets, is greater than the combined mileage of all the railroads in the world." Mr. Potter is the secretary of the New York State Roads Improvement Association, and his article, called "The Profit of Good Country Roads," is therefore entitled to earnest attention. How does he describe the condition of the public ways in question, after noting the immense sums which, in deference to the demands of capital—for the profit of individuals and corporations more immediately than for the profit of the people at large—the nation has spent in the establishment of commercial centres, in the development of railroads, in the improvement of river-ways and harbors, and the extension of telegraphic lines? "With the enlargement of concentric circles surrounding every American inland town," he says, "is to be found an apparently undue diminution of agricultural population, wealth and thrift." And this is because "the dirt-road, that only avenue of communication which connects the farmer socially and commercially with the world at large . . . is the same road that was used a hundred centuries ago by the naked savage when chased by a storm to the sheltering cave, and from him seems to have descended as an entailed legacy to the American government. In all these years it has not changed, except that the modern article is more or less churned and mangled by narrow wheel-tires and flanked by costly and useless fences—two species of property unknown to our primitive ancestor and first conceived at that later period which marked the dividing-line between instinct and imbecility. Measuring a million miles or more in its various ramifications, dissolving in the rains of April, baking and pulverizing beneath the rays of the midsummer sun, drifting and disappearing in the whirlwinds of November, and presenting at all times but little more than a roughened streak of soil to serve as a land highway for the great volume of internal traffic the time seems to have come when the American common road may rightfully assert itself as the most expensive and by all odds the most extravagantly maintained of all the public institutions. To the intelligent foreigner who comes to our shores the American 'system' of road maintenance is little short of ridiculous; to the thoughtful and inquiring native it is only a kind of legalized negligence, a relic of feudalism borrowed from England in the old days of governmental poverty and placed in the keeping of the most patient and long-suffering of our industrial classes, who have gradually been led by 'the ensnaring wiles of custom' to endure and embrace it." Then the author declares, and all sensible men will agree with him, that an understanding of the pecuniary benefits of good roads "is a national question; for these roads are the common care and property of all the nation, and any effect which grows out of their improvement must be found directly in the economic condition of the persons and property within their widened influence."

We cannot follow Mr. Potter through the explanation he then gives of the condition of American farms, illustrated by many facts and figures, showing how vastly the number of small holdings has decreased in the west during the past ten years while the extent of very large ones has correspondingly increased, and calculating the future need for good common roads by estimates of the rate at which the agricultural productiveness of many regions may be expected to augment during the immediate future. We can merely recommend his article to all good citizens as the most scientific exposition of the matter which has yet come under our eyes, and, therefore, of course, the most convincing. He then quotes the experience of foreign countries to show the value and ultimate economy of good systems of road-management, and likewise of a few American counties where experiments in this direction have been made. He cites, for instance, the testimony of a resident of Union County, New Jersey, where forty miles of telford and macadam road have been built at a cost of $10,000 per mile, which declares "that the property in Union County has actually appreciated in value far more than the cost of the roads, and this not only in cases of sale or exchange but upon the tax-levy. Notwithstanding the fact that $300,000 worth of county bonds have been issued to build these roads, and the interest must be met annually, the tax-rate has not been increased in the county, or in any city in the county, in consequence of the extra interest-expense; and it is but fair to say that the actual appreciation of property due to the increased value of lands benefited by the improved roads meets the increased taxes already. And none of our roads have been completed for more than a year, and some parts of them only within the present month. As an advertising medium alone they have been worth what they cost. . . . It is safe to say that the citizens and taxpayers of Union County would not go permanently back to the old system, with its old roads, if they were paid many times the cost of the new roads."

The agitations in favor of new roads recently begun in several states are then mentioned by Mr. Potter, and a deserved tribute is paid to the services of the "League of American Wheelmen," whose 25,000 members have done a vast amount of careful, conscientious, systematic work in the way of collecting statistics, printing and circulating information, and studying the best methods for improving the present state of things—work which has, of course, been largely inspired by a sense of their own personal interests and yet has been carried on in a truly public-spirited way, and will unquestionably conduce very greatly to the benefit of the people as a whole. In conclusion Mr. Potter says that he believes "the signs are hopeful, and the future of the American road is full of promise." Work for its improvement is already "well in hand," and he is cheered by the thought that soon "the government and the states will be brought to adopt that beneficent principle of statecraft which leads a nation rightly and fully to exercise its paternal functions and to direct the public hand to the aid and development of that great branch of industry which was born with the birth of the nation itself and upon the success of which all national wealth must eventually depend."

Notes.

A chute in the logging camp at Clifton, Oregon, is described as one of the longest in the world, measuring three-quarters of a mile. Its bottom is shod with railroad iron, and, on account of its smoothness and the steepness of the descent, logs traverse it in the space of twenty seconds.

Hungarian vineyards have been terribly devastated of late by the phylloxera, the celebrated establishments at Hegyalya, the headquarters for the production of Tokay wine, having been almost wholly destroyed, many other districts being in as bad a case, and the pest having spread through 1,500 parishes.

The Grand Falls of Labrador were recently rediscovered by an expedition of students from Bowdoin College, and prove to be one of the greatest natural wonders of the world. The precipice is 316 feet in height, and the rapids above the fall make the entire descent about 500 feet. The river is a powerful stream 200 feet wide.

The Canna, Star of '91, which was shown in abundance at the late flower-show in Madison Square Garden, proved to every one that it is to be classed among the very best of these dwarf varieties along with Madame Crozy. Some growers claim that Madame Crozy is best for outdoor work, but we could hardly dispense with either one of these constantly blooming plants.

A correspondent of the *Country Gentleman* states that the Locust-tree was brought to this section from Virginia by Captain John Sands, of Sands' Point, Long Island, about 1700. During the last twenty years the demand for locust-timber has been so heavy as to cause almost an extermination of the trees. With the small supply and increasing demand, Locust-saplings are sure to prove a good investment.

The first-prize seedling Chrysanthemum of this year at the Chicago exhibition was shown by Frank Leslie and named Mrs. A. C. Allerton; it is a distinct coppery yellow, incurved flower of large size. Mr. J. C. Vaughan received certificates for the King's Daughter, a large flower with petals of snowy white, and for Golden Gate, a large double reflexed chrome-yellow flower. Messrs. Pitcher & Manda also received a certificate for a yellow flower of the Mrs. Hardy type, and named W. A. Manda.

Among the successful Chrysanthemum exhibitions of the season the one held at Buffalo last week is worthy of mention. The correspondents speak in praise of seedlings raised by John F. Cowell, of that city, as very meritorious, one of them being a hybrid between Louis Bœhmer and Lilian Bird, in which the petals, although tubular, are strongly incurved. William Scott's collections of Carnations were praised, and an unnamed variety called No. 24, white with a fringed edge, strongly scented and numerous long petals, is spoken of as an excellent flower, as is No. 30, a pink, somewhat darker than Grace Wilder.

The annual Chrysanthemum-show at Indianapolis has usually brought out many promising seedlings, and this year there were a large number certificated, several of which have already been described in our columns, as, for example, Pitcher & Manda's Harry May, and E. G. Hill & Co.'s O. P. Bassett, Maud Dean, Edward Hatch, Mrs. Lewis Childs, Madeira and Mrs. Robert Craig. Henry Rieman won the prize for the best Pink with Olga, a fine well-built flower, full and double to the centre, on a strong stiff stem. Nathan Smith & Son showed the best yellow in Miles A. Wheeler, and the same growers won the premium for the best white flower with Mrs. Governor Fifer, a flower of informal shape, with broad petals and fine contour.

It is very plain that English growers have not found out how to treat the Chrysanthemum Mrs. Alpheus Hardy, as there is general complaint about it in the horticultural journals across the water. It is stated in *The Garden* that in the great national Chrysanthemum-show there were not more than half a dozen blooms of this variety in the whole exhibition, and only one of these could be called up to exhibition form. It is a misfortune that some of these English gardeners could not have seen the vase of cut blooms of this variety shown at the New York exhibition by Peter Henderson & Co. So far from not fulfilling the early promise of the flower, they were better this year than ever before. The blooms were absolutely perfect, although the stems were too feeble to hold them up as they should.

A few years ago the beautiful little Ram's-head Lady's-slipper was discovered in the Chinese province of Yun Nan by Abbé Delavay, and this was another illustration of the close relation between the flora of eastern North America and that of China and Japan. Orchids, however, are not widely distributed, and this fact was considered most interesting. We are now informed in a note in the *Gardeners' Chronicle* by our correspondent, Mr. R. A. Rolfe, that a collector on the Tibetan frontier, Mr. A. E. Pratt, has sent some fine specimens to Kew of *C. spectabile*, which is probably the most beautiful plant of the genus and one of the most charming of our North American hardy flowers. We shall, therefore, be able to speak no longer of this showy Lady's-slipper as an exclusively American flower.

Everybody admires the bold masses of white flowers in the autumn on well-grown plants of *Pyrethrum uliginosum*. In many places abroad it is used at the back of a mixed border with Dahlias and early-blooming Chrysanthemums in front. Some people, however, think that the size of this plant detracts from its decorative value, and they will be glad to receive the suggestion which Mr. R. Dean makes in the *Gardeners' Magazine*, London, that branches of this plant can be layered just before the buds are formed, when they root readily and make neat little plants, six or eight inches high, which will be covered with bloom. It is an easy matter to layer the plants in this way, as they root readily, and the dwarf plants which are thus produced will be found very useful for decorating cold greenhouses or as window-plants at this season.

Some years ago Mr. Heinrich Schmidt, of Erfurt, found in a neglected nursery-garden a wild Cherry-tree, which he cultivated, and which finally became a well-grown tree of good appearance, and with the remarkable peculiarity of bearing ripe fruit in September and October. Mr. J. C. Schmidt, who is now the proprietor of the same establishment, writes to the *Gardeners' Chronicle* to invite attention to this remarkable tree, which does not begin to ripen fruit until all other cherries are gone. The first ripe fruits are seen in early September, and up to the middle of October there appear ripe, half-ripe and unripe fruits on the tree at the same time. The fruit is said to be of a dark red color, of good size, with a fine acid, vinous flavor. Mr. Schmidt's letter was accompanied by a wood-cut taken from a photograph executed on September the 12th, in which the ripening fruit appeared. The firm has called the variety Hochgenuss von Erfurt, Great Satisfaction from Erfurt.

The King of the Belgians is well known for his devotion to horticulture and landscape-gardening. For ten years His Majesty has been designing and superintending alterations in the palace and grounds of Ciergnon Castle, which has been erected on the site of a small hunting-lodge used by the late Leopold I., where there is a large and well-stocked conservatory in which an electric-light can be made to glitter at the base of every plant by simply pressing a button. The engine which furnishes the electricity for the light also pumps water to a large reservoir which is used for watering the plantation in the park, and the tank is planned so as to be ornamental as well as useful. The ground about it is arranged in a natural manner, and little brooks and cascades have been made to course through them under raised bridges and through gorges which open vistas into the adjoining country. The grounds are near the woods of the Ardennes, and they extend for a distance of three leagues on a gentle declivity from the chief entrance for some distance, and then rise sharply to a Pine-clad ridge.

Professor Trelease, of the Missouri Botanical Garden, has issued his third announcement concerning garden-pupils. It will be remembered that two years ago six scholarships were established, which were to be awarded by the director on competitive examination to young men under certain conditions provided by the trustees. One candidate for these scholarships was to be named by the Horticultural Society of Missouri, and another by the Florists' Club of St. Louis, and of the three scholarships to be awarded by the director of the garden before the 1st of next April one is now reserved for the nomination of the Florists' Club of St. Louis. Applications for scholarships must be in the hands of the director before the first day of March next, and the examination will be held on March 8th at the Shaw School of Botany. We have before spoken of the thorough nature of the course presented by this institution, which aims to give thorough instruction in vegetable-gardening, small-fruit culture, orchard-culture, forestry, botany, landscape-gardening, vegetable physiology, economical entomology, etc. It is especially desired that the candidates for scholarship should not be much over fourteen years old, and they will receive all needed information together with the necessary blanks, if they will address Professor William Trelease, Director of the Missouri Botanical Garden, St. Louis. The course of instruction is not planned to be a mere repetition of the courses now offered by the numerous state colleges of the country, but it is quite distinct and held strictly to what will be considered necessary for the training of practical gardeners. There certainly is room for an institution of this sort in the United States, and it is to be hoped that many bright young men will avail themselves of the singular advantages which are here offered.

TWILIGHT PARK IN THE CATSKILLS.

I write these advertisements with the frankness of a private letter, seeking to entice every reader to visit this Happy Valley so full of witching beauty. Here you may find rest and refreshment for mind and body, drawing inspiration from the grandeur of the mountains and hearing "the still small voice" that speaks to the soul in the forest recesses.

The *Nation's* editorial on "Changes in Summer Migration" emphasizes the growing taste for sequestered homes amid rural quiet, and the wholesome preference for "summer rest" rather than "summer whirl," and for prolonging the vacation season from June to October. Our people are learning to relish rural life as the English do, and to shrink from the exactions of "society" and fashion. We shall see Twilight Parks everywhere, and the cottage system has come to stay.

Our simple log cabins are most popular. If you could peek into the window where I am writing before breakfast, with my dogs by my side this superb morning, you would think it inviting. Rough comfort is the chief aim. A corner fire-place, some Shaker rockers, cheap matting, and a few rugs on the floor; a lot of Art Interchange sketches in rustic frames on the walls, an ancient desk and spinning-wheel, with Japanese lanterns galore, a flag or two, some jars and mugs, a Burlap portière—and that is all. The beds are of the best. There is abundant light, and air, and comfort; and we relish it all—even Prince and Rover, waiting for their romp.

When you come to Twilight you will be "personally conducted" about the place, and shown the houses and the views, but you will not be urged to buy. We are not mercenary, but are so proud of our baby settlement that we want every one to know when it is getting a new tooth.

Perhaps you may fall in love with the Park, but it won't be our fault; we only press the button and Nature does the rest. But you must be "a clubbable fellow," and not a votary of fashion or Mrs. Grundy, to relish such life, or to be admitted to our charmed circle.

CHAS. F. WINGATE,
Haines Falls, Greene Co., or 119 Pearl St., N. Y.

No Trees LAST & BEAR like WHOLE ROOT Trees; see "Fruits and Fruit Trees"—Free. *Amer. Garden* says: Novel, USEFUL, to the point. *Orange Judd Farmer*: Ably written; gives trusty INFORMATION. *Cal. Fruit Grower*: Surprising LOW prices! Apple, Pear, Cherry, Plum, PRUNE, Peach, Ap't, Quince, Nut, Or. Trees, Grafts, ROSES—*everything*. No larger stock in U.S. No BETTER. No cheaper. STARK BROS., 98th St., Louisiana, Mo.—Founded 1823; OLDEST. 1000 Acres; LARGEST.

Readers of GARDEN AND FOREST are requested to mention that paper in corresponding with advertisers.

JOHN LEWIS CHILDS

HAS ONE HUNDRED AND FIFTY ACRES IN FLOWERS.

THE LARGEST STOCK of GLADIOLUS, LILIES, DAHLIAS, Etc., in the country. Come to Floral Park and see them for yourself. Our complete Catalogue of HARDY BULBS AND PLANTS for Fall Planting and Winter Blooming will be ready September 1st. Free to all applicants.

FLORAL PARK, Queens County (Long Island), N. Y.

A GREAT INVENTION,

The merits of which must Command Universal Use.

"NEPONSET" WATERPROOF FLOWER POTS

Light, Handsome,
Clean, Durable,
Cheap, Unbreakable.

Sole Manufacturers:

F. W. BIRD & SON, East Walpole, Mass.

Wholesale Agents:

R. & J. FARQUHAR & CO., S. Market Street, Boston, Mass.

AUGUST RÖLKER & SON, Station E, New York City.

WRITE FOR SAMPLES, CIRCULARS, ETC.

$3.00 1892 $3.00

The Overland Monthly

Subscription Price Reduced to

THREE DOLLARS A YEAR.

The Overland

Is the Representative Magazine of the Pacific Coast!

EVERY NUMBER WILL BE ILLUSTRATED.

IMPROVEMENTS IN EVERY DIRECTION!

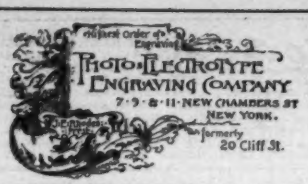
The Home Seeker, the Investor, the Student of American Life and History, must have it.

In making up your lists for 1892, include The Overland.

Send 20 cents for Sample Copy.

Address Overland Monthly,

420 MONTGOMERY STREET, SAN FRANCISCO, CAL.



GREENHOUSES, PALM-HOUSES, CONSERVATORIES.

IRON CONSTRUCTION, PATENT IMPERISHABLE PUTTYLESS GLAZING.

Under this construction, Greenhouses are free from the constant annoyance of broken glass, frequent painting, and rapid decay. Over 40,000 square feet of glass under construction at present time. Send stamp for postage of Catalogues, Circulars, &c., to

JOSEPHUS PLENTY,
HORTICULTURAL AND SKYLIGHT WORKS.
New York Office: 145 Liberty St.
Mail Office & Works: 148-156 Randolph Ave., Jersey City.

WHEN YOU TRAVEL

It is always policy to take the quickest and most comfortable route. The popularity of the New York Central and Hudson River Railroad with experienced travelers is due to the fact that it possesses a perfect roadbed, four tracks (an advantage afforded by no other railroad in the world), easy curves, light grades, magnificent scenery, and superb equipment.

It has become almost a matter of course with persons visiting the metropolis to take the New York Central, as that is the only Trunk Line running its trains into the city of New York; its passenger terminus—Grand Central Station—being located in the very centre of the city, convenient to all the principal hotels.

It will pay you to bear these facts in mind, and on your next trip, ticket via the New York Central, and

TRAVEL COMFORTABLY.

PAINT YOUR ROOFS WITH DIXON'S SILICA GRAPHITE PAINT

Water will run from it pure and clean. It covers double the surface of any other paint, and will *last four or five times longer*. Equally useful for any iron work. Send for circulars. JOS. DIXON CRUCIBLE CO., Jersey City, N. J.

HARDY ROSES
(For Fall Planting.)
The largest stock in America. | NEWEST VARIETIES FINEST PLANTS.
Complete Catalogue FREE. **ELLWANGER & BARRY**
Mt. Hope Nurseries, ROCHESTER N.Y.

THE GREAT AMERICAN TEA COMPANY

CHANCE FOR ALL

To Enjoy a Cup of Perfect Tea, A TRIAL ORDER of 3½ pounds of Fine Tea, either Oolong, Japan, Imperial, Gunpowder, Young Hyson, Mixed, English Breakfast, or Sun Sun Chop, sent by mail on receipt of $1.00. Be particular and state what kind of Tea you want. Greatest inducement ever offered to get orders for our celebrated Teas, Coffees and Baking Powder. For full particulars address THE GREAT AMERICAN TEA CO. P. O. Box 289. 31 and 32 Vesey St., New York.

NUT TREES.

CHESTNUTS.—*JAPAN MAMMOTH* and *GIANT. Parry's*; Japan Walnuts, *JAPAN GOLDEN RUSSET, IDAHO* and Kieffer Pears, *ELEAGNUS LONGIPES, HARDY ORANGES*, and other valuable novelties. Small Fruits, *GRAPES* etc. Fruit, Shade and Nut Trees, Ornamental Shrubs, Vines, etc. Illustrated Descriptive Catalogue Free.

WM. PARRY, Parry, New Jersey.

FRANK MILLER'S
STANDARD OF THE WORLD.

For Harness, Buggy Tops, Saddles, Fly Nets Traveling Bags, Military Equipments, Etc.
Gives a beautiful finish, which will not peel or crack off, smut or crock by handling.
SOLD BY ALL HARNESS MAKERS.

IN THE SELECTION OF
A CHOICE GIFT
or of an addition to one's library, elegance and usefulness will be found combined in

A New Book from Cover to Cover.

WEBSTER'S INTERNATIONAL DICTIONARY

Revision cost over $300,000.

SUCCESSOR OF THE UNABRIDGED.
Ten years revising. 100 editors employed. Critical examination invited. Get the Best. Sold by all Booksellers. Pamphlet free.
G. & C. MERRIAM & CO., Springfield, Mass.

GLASS

For GREENHOUSES, GRAPERIES, CONSERVATORIES, HOTHOUSES AND HOTBEDS.

VANHORNE, GRIFFEN & CO.
Importers of French Glass. Bent Glass. Skylight Glass.

Special Importation for Rose-house purposes.

131, 133, 135 & 137 FRANKLIN ST., NEW YORK CITY.

BERMUDA AS A SUMMER RESORT.—It is proposed to keep open several of the hotels and boarding-houses during this summer for the accommodation of tourists who would like to combine A SIXTY HOUR SEA VOYAGE with their outing at the sea-shore. 86° is the highest temperature ever recorded by the U. S. Signal Observer. Range of Temperature, July and August, is from 65° to 81°. BERMUDA ISLAND is 700 miles due south-east from New York. British Colony. Cable connection with New York. One hundred miles stone road; good hotels; fine shops; delightful yachting and rowing; best of fishing; perfect cycling; ideal land for artists: superb sea bathing, still or surf; MALARIA UNKNOWN. Steamers leave New York weekly. For information apply to A. E. Outerbridge & Co., 39 B'way, N. Y. City. THOS. COOK & SON.

Arnold, Constable & Co.

BLANKETS and FLANNELS.

Embroidered Flannels, Eider Down, Jersey Stripe Flannels, Striped and Figured French Flannels for Sacques and Wrappers, Down Quilts and Pillows.

BLANKETS.

White, Colored and Fancy Quilts and Quiltings.

Broadway & 19th st.
New York.

SIEBRECHT & WADLEY
New Catalogue of Plants.
ROSE HILL NURSERY
NEW ROCHELLE, N.Y.
Tuberous Begonias
A SPECIALTY.

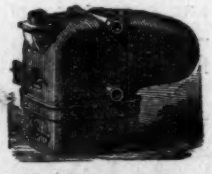
Readers of GARDEN AND FOREST are requested to mention that paper in corresponding with advertisers.

HITCHINGS & CO.
Established 1844.

Greenhouse Heating
AND
VENTILATING.

Base-Burning Water Heaters for Small Conservatories.

Corrugated Fire Box Boilers for large Greenhouses



Horticultural Architecture
AND BUILDING.
Greenhouses, Conservatories, Palm Houses, etc.

Erected complete, or the Structural Iron work shipped ready for erection, with plans, details, and full instructions to enable the local builder to erect same.

HITCHINGS & CO.,
No. 233 Mercer Street, New York.
Send Four Cents postage for Illustrated Catalogue.